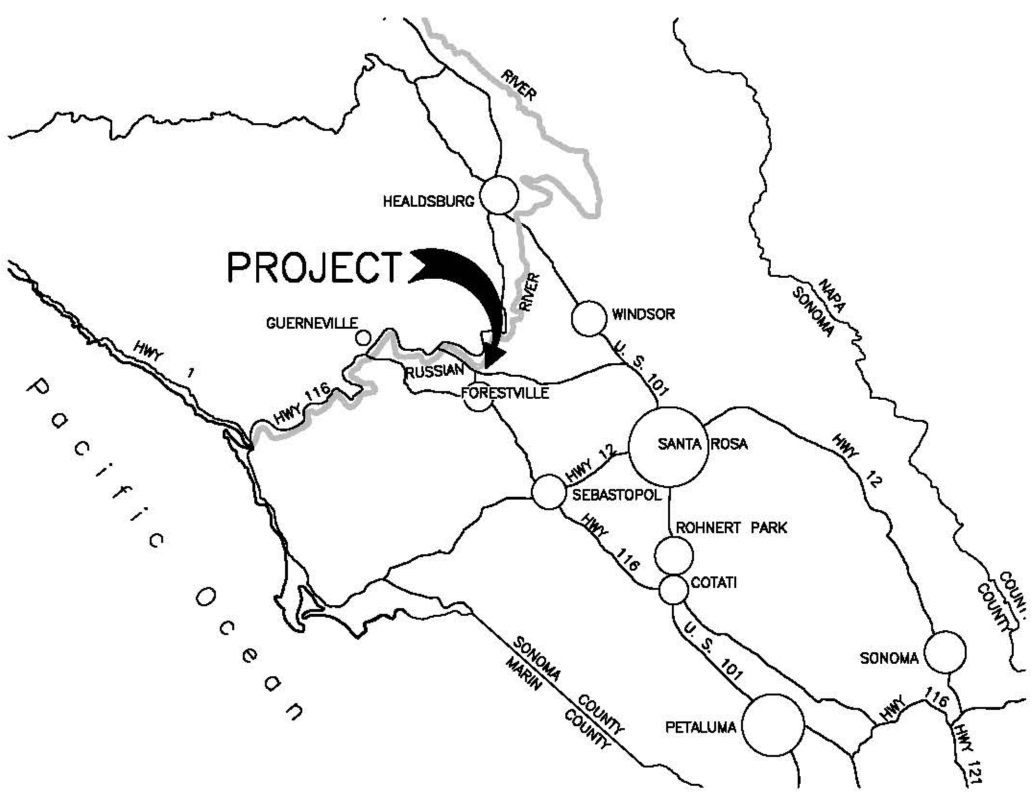
Appendix A

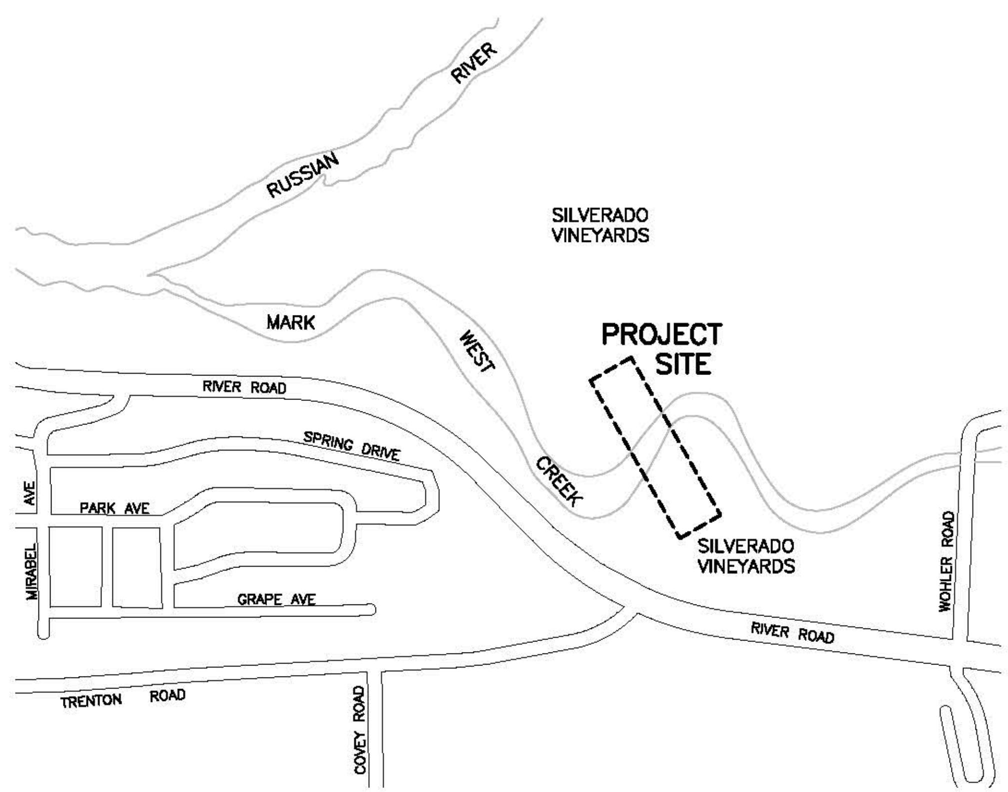
65% Complete Designs for the Proposed Project

SONOMA COUNTY WATER AGENCY

RUSSIAN RIVER - COTATI INTERTIE PIPELINE AT MARK WEST CREEK CROSSING



VICINITY MAP



LOCATION MAP

DRAWING LIST

GENERAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO WATER AGENCY STANDARDS.
2. NEW WATER LINES SHALL BE DISINFECTED AND PRESSURE TESTED IN ACCORDANCE WITH THE SPECIFICATIONS.
3. THE LOCATION SHOWN FOR EXISTING UTILITIES IS APPROXIMATE ONLY. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES IN THE VICINITY OF WORK. REPAIRS TO DAMAGED UTILITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT (USA) 1-800-227-2600, A MINIMUM OF TWO WORKING DAYS PRIOR TO WORK COMMENCEMENT. CONTRACTOR SHALL POTHOLE EXISTING UTILITIES IN ADVANCE OF THE PIPELINE WORK.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING TREES, PLANTS, AND SHRUBS. ANY TREE, PLANT, AND/OR SHRUB DAMAGED SHALL BE REPLACED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.
5. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A PERMIT FROM THE DIVISION OF OCCUPATIONAL SAFETY & HEALTH PRIOR TO TRENCHING EXCAVATION 5 FEET OR MORE IN DEPTH. A COPY OF THE PERMIT SHALL BE AVAILABLE ONSITE AT ALL TIMES.
6. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RECORD DRAWINGS FOR ALL WORK COMPLETED. AS-BUILT DOCUMENTS TO BE PROVIDED AT THE COMPLETION OF WORK IN ACCORDANCE WITH THE SPECIFICATIONS.
7. ALL EXISTING SURVEY MONUMENTS AND CONTROL POINTS SHALL BE PROTECTED FROM DAMAGE OR DISTURBANCE THROUGHOUT CONSTRUCTION. IF EXISTING SURVEY MONUMENTS AND/OR CONTROL POINTS ARE DISTURBED, THEN THE POINTS SHALL BE RE-ESTABLISHED AND MONUMENTS SET BY A LAND SURVEYOR LICENSED IN THE STATE OF CALIFORNIA.
8. COORDINATE ALL CONSTRUCTION WITH SILVERADO VINEYARDS
9. CONTRACTOR'S ATTENTION IS DIRECTED TO TWO GEOTECHNICAL REPORTS PREPARED FOR THIS PROJECT; "RUSSIAN RIVER-COTATI INTERTIE PIPELINE AT MARK WEST CREEK CROSSING, GEOTECHNICAL DATA REPORT" DATED _____ AND INCLUDED IN THE CONTRACT DOCUMENTS AS AN APPENDIX TO THE SPECIFICATIONS, AND "RUSSIAN RIVER-COTATI INTERTIE PIPELINE AT MARK WEST CREEK CROSSING, GEOTECHNICAL INTERPRETIVE REPORT," DATED ______ AND AVAILABLE FOR REVIEW AT WATER AGENCY OFFICES.

SURVEY CONTROLS

1. *TO BE ADDED NEXT SUBMITTAL*
2.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY

HDR

60% SUBMITTAL
NOT FOR CONSTRUCTION

NO	DATE	REVISION	BY
1	04-29-2015	60% DESIGN DRAWINGS	

SCALE: NONE | DATE: 4/29/2015
DRAWN: R. SALCEDO
REVIEWED:

Sonoma County Water Agency
Russian River - Cotati Intertie Pipeline at Mark West Creek Crossing
COVER SHEET, LOCATION MAPS, AND DRAWING INDEX

FILE NAME: 218280_G01.dwg
CONTRACT NUMBER:
DRAWING NUMBER: G1
SHEET 1 OF 6

C:\pwworking\sac\d0568817\218280_G01

SITE PLAN SYMBOLOGY

EMBANKMENT SLOPE
500 — CONTOUR
VEGETATION (SIZE)
CO — CLEANOUT
MH — MANHOLE
MW — MONITORING WELL
PZ — PIEZOMETER
CB — STORM DRAIN CATCH BASIN
UV — UTILITY VAULT
PP — POWER POLE
TP — TELEPHONE POLE
FH — FIRE HYDRANT
YH-X — YARD HYDRANT
X75.5 — EXISTING SPOT ELEVATION
75.8 — FINISHED SPOT ELEVATION
CP-X — HORIZONTAL CONTROL POINT
BENCHMARK
B-"X" — IDENTIFICATION AND APPROXIMATE LOCATION OF SOIL BORING
CPT-"X" — IDENTIFICATION AND APPROXIMATE LOCATION OF CONE PENETRATION TEST

NOTES:

1. UTILITIES THAT ARE SUSPENDED ABOVE GRADE ARE DESIGNATED BY THE PREFIX "OH" (OVERHEAD).

NEW WATER PIPELINE
W — EXST WATER
T — TELEPHONE LINE
E — ELECTRIC LINE
C — COMMUNICATION
LARGE PIPELINE
UTILITY BENEATH STRUCTURE
X — CHAIN LINK FENCE
X — FIELD FENCE
PROPERTY LINE
CENTERLINE
EASEMENT
LIMITS OF CONSTRUCTION
ROW

GENERAL SYMBOLOGY

PLAN
1/4" = 1'-0"
ARROW INDICATES DIRECTION OF PLAN NORTH
N

SECTION LETTER
FLAG INDICATES DIRECTION OF SECTION CUT
X / XXXX
* DRAWING WHERE SECTION VIEW IS LOCATED
* DRAWING WHERE SECTION VIEW IS CUT

SECTION CUT MARKER

SECTION
3/8" = 1'-0"
SECTION LETTER
* DRAWING WHERE SECTION VIEW IS FIRST CUT
* DRAWING WHERE SECTION VIEW IS LOCATED

X / XX
DETAIL NUMBER
* DRAWING WHERE DETAIL IS LOCATED

DETAIL MARKER

DETAIL
3" = 1'-0"
DETAIL NUMBER
* DRAWING WHERE DETAIL WAS TAKEN
* DRAWING WHERE DETAIL IS LOCATED

ELEVATION LETTER
ARROW INDICATES POINT OF VIEW
* DRAWING WHERE ELEVATION IS LOCATED
* DRAWING WHERE ELEVATION IS CUT

SINGLE ELEVATION OR PHOTO MARKER

ELEVATION LETTER
ARROW INDICATES POINT OF VIEW ELEVATION
INDICATES DRAWING WHERE ELEVATION IS LOCATED
XX

MULTIPLE ELEVATION OR PHOTO MARKER

ELEVATION
3" = 1'-0"
ELEVATION IDENTIFICATION LETTER
* DRAWING WHERE POINT OF VIEW MARKER CAN BE FOUND
* DRAWING WHERE ELEVATION VIEW CAN BE FOUND

* IF PLAN AND SECTION, OR DETAIL CALL-OUT AND DETAIL ARE SHOWN ON SAME DRAWING, DRAWING NUMBER IS REPLACED BY A LINE (—).

PRE-CAST MANHOLE
DESCRIPTION
02515X01
SPECIFICATION SECTION AND DETAIL NUMBER

STANDARD DETAIL MARKER

X
KEYNOTE NUMBER

KEYNOTE DESIGNATION

60% SUBMITTAL
NOT FOR CONSTRUCTION

MATERIALS IN PLAN/SECTION

CONCRETE (PLAN AND/OR SECTION)
DEMOLITION (PLAN AND/OR SECTION)
EARTH (SECTION)

IDENTIFICATION SYMBOLOGY

PIPING

FIGURE — EXAMPLE
24" EFF
LINE SIZE — 24"
SERVICE — FINAL EFFLUENT
SERVICE DESIGNATOR: W — SERVICE: WATER

ABBREVIATIONS

AB	ANCHOR BOLT, AERATION BASIN
ABAN	ABANDON
ABC	AGGREGATE BASE COURSE
AC	ASPHALT CONCRETE, ACRES
AD	ADDENDUM, AREA DRAIN
ADDL	ADDITIONAL
ADH	ADHESIVE
ADJ	ADJUSTABLE, ADJACENT
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AGGR	AGGREGATE
AI	AREA INLET
AIT	ANALYZER INDICATOR TRANSMITTER
ALIG	ALIGNMENT
ALT	ALTERNATE, ALTITUDE
ALUM	ALUMINUM
ANC	ANCHOR
APRX	APPROXIMATE
APVD	APPROVED
ASSY	ASSEMBLY
AUTO	AUTOMATIC
AVE	AVENUE
AVG	AVERAGE
AWG	AMERICAN WIRE GAGE
B TO B	BACK TO BACK
BAL	BALANCE
BC	BOLT CENTER, BOLT CIRCLE
BD	BOARD
BE	BOTH ENDS
BF	BOTH FACES, BOTTOM FACE
BITUM	BITUMINOUS
BKG	BACKING
BL	BASE LINE
BLDG	BUILDING
BM	BENCHMARK
BOP	BOTTOM OF PIPE
BOT	BOTTOM
BP	BASE PLATE
BS	BOTH SIDES
BTW	BETWEEN
BTWLD	BUTT WELD
BU	BUILT-UP
BW	BOTH WAYS
BYP	BYPASS
C TO C	CENTER TO CENTER
CAP	CAPACITY
CDF	CONTROLLED-DENSITY FILL
CE	CONCRETE EDGE
CF	CUBIC FEET (FOOT)
CHFR	CHAMFER
CIP	CAST-IN-PLACE
CJ	CONSTRUCTION JOINT
CLJ	CONTROL JOINT
CLR	CLEAR
CMLC	CEMENT MORTAR LINED AND COATED
CMP	CORRUGATED METAL PIPE
CON	CONCENTRIC
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
COOR	COORDINATE
CP	CONTROL POINT
CPLG	COUPLING
CPVC	CHLORINATED POLYVINYL CHLORIDE
CTR	CENTER
CTRL	CONTROL
CVT	CULVERT
CU	CUBIC
CY	CUBIC YARD
D	DEEP, DRAIN
DBL	DOUBLE
DEG	DEGREE
DEMO	DEMOLITION
DEP	DEPRESSED
DET	DETAIL
DI	DROP INLET, DUCTILE IRON
DIA	DIAMETER
DIM	DIMENSION
DISCH	DISCHARGE
DIST	DISTANCE, DISTRIBUTION
DMJ	DOUBLE MECHANICAL JOINT
DN	DOWN
DP	DEPTH
DUP	DUPLICATE
DWG	DRAWING
E	EAST
EA	EACH
ECC	ECCENTRIC
EF	EACH FACE
EFF	EFFLUENT
EG	EXISTING GRADE
EL	ELBOW, ELEVATION
ELEC	ELECTRICAL
EMBD	EMBEDDED
EMER	EMERGENCY
ENCL	ENCLOSURE
ENGR	ENGINEER
ENTR	ENTRANCE
EOP	EDGE OF PAVEMENT
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ES	EACH SIDE
EST	ESTIMATE
EW	EACH WAY
EWEF	EACH WAY, EACH FACE
EWTB	EACH WAY, TOP AND BOTTOM
EXC	EXCAVATION
EXP	EXPANSION, EXPOSED
EXST	EXISTING
EXT	EXTERIOR, EXTERNAL, EXTENSION
F TO F	FACE TO FACE
FAB	FABRICATE
FB	FLAT BAR
FC	FLUSHING CONNECTION
FCA	FLANGED COUPLING ADAPTER
FD	FLOOR DRAIN
FDTN	FOUNDATION
FE	FLANGED END
FES	FLARED END SECTION
FF	FAR FACE, FLAT FACE
FG	FINISHED GRADE
FIN	FINISH
FIT	FLOW INDICATOR TRANSMITTER
FL	FLOW, FLOW LINE
FLEX	FLEXIBLE
FLG	FLANGE
FLR	FLOOR
FN	FENCE
FOC	FACE OF CONCRETE
FPT	FEMALE PIPE THREAD
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FAR SIDE
FT	FEET, FOOT
FTG	FOOTING, FITTING
FUT	FUTURE
FW	FIELD WELD
FWD	FORWARD
FWE	FURNISHED WITH EQUIPMENT
FXTR	FIXTURE
GA	GAGE (METAL THICKNESS)
GAL	GALLON
GALV	GALVANIZED
GB	GRADE BREAK
GD	GUARD
GDR	GEOTECHNICAL DATA REPORT
GEN	GENERAL
GIR	GEOTECHNICAL INTERPRETIVE REPORT
GJ	GROOVED JOINT
GND	GROUND
GP	GUY POLE
GR	GRADE
GRTG	GRATING
GVL	GRAVEL
H	HIGH
HD	HEAD
HDPE	HIGH DENSITY POLYETHYLENE
HDR	HEADER
HDW	HARDWARE
HEX	HEXAGONAL
HFCA	HARNESSED FLANGED COUPLING ADAPTER
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HIGH POINT
HPC	HORIZONTAL POINT OF CURVATURE
HPT	HORIZONTAL POINT OF TANGENCY
HSS	HOLLOW STRUCTURAL SHAPE
HT	HEIGHT
HV	HIGH VOLTAGE
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HWL	HIGH WATER LEVEL
HYD	HYDRAULIC
HZ	HERTZ, CYCLES PER SECOND
ID	INSIDE DIAMETER, INTERIOR DIMENSION
IE	INVERT ELEVATION
IF	INSIDE FACE
IN	INCH
INCL	INCLUDE
INF	INFLUENT
INT	INTERSECTION
INTR	INTERMEDIATE, INTERIOR
INV	INVERT
IP	INCLINOMETER/PIEZOMETER
IPS	IRON PIPE SIZE
IPT	INTERNAL PIPE THREAD
IR	INSIDE RADIUS
IRR	IRRIGATION
ISO	ISOMETRIC
JCT	JUNCTION
JT	JOINT
K	KIP
KSI	THOUSAND POUNDS PER SQUARE INCH
KO	KNOCK OUT
L	ANGLE, LENGTH
LATL	LATERAL
LB	LAG BOLT
LDR	LEADER
LE	LIFTING EYE
LF	LINEAR FOOT
LG	LONG
LIN	LINEAR
LNG	LONGITUDINAL
LOC	LOCATION
LP	LOW POINT
LR	LONG RADIUS
LT	LEFT
LTG	LIGHTING
LTL	LINTEL
LWC	LIGHTWEIGHT CONCRETE
LWL	LOW WATER LEVEL
MAINT	MAINTENANCE
MATL	MATERIAL
MAX	MAXIMUM
MC	MECHANICAL COUPLING
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR, MASTER CONTROL PANEL
MED	MEDIUM
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
ML	MIXED LIQUOR
MOV	MOTOR OPERATED VALVE
MSL	MEAN SEA LEVEL
MT	MOUNT
MW	MONITORING WELL
N	NORTH
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NF	NEAR FACE
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN, NUMBER
NOM	NOMINAL
NPS	NOMINAL PIPE SIZE
NS	NEAR SIDE
NTS	NOT TO SCALE
NWL	NORMAL WATER LEVEL
O TO O	OUT TO OUT
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OH	OVERHEAD
OPNG	OPENING
OPP	OPPOSITE
OPT	OPTIONAL
OR	OUTSIDE RADIUS
ORIG	ORIGINAL
OVFL	OVERFLOW
P	PIEZOMETER
PAR	PARALLEL
PC	POINT OF CURVE, PRECAST
PCC	POINT OF COMPOUND CURVATURE
PCF	POUNDS PER CUBIC FOOT
PCS	PROJECT CLASSIFIED SYSTEM
PCT	PERCENT
PE	PLAIN END
PED	PEDESTAL
PEN	PENETRATION
PERF	PERFORATED
PERM	PERMANENT
PERP	PERPENDICULAR
PG	PRESSURE GAGE
PI	PLANT INFLUENT
PIT	PRESSURE INDICATOR TRANSMITTER
PL	PLATE, PROPERTY LINE
PLCS	PLACES
PLF	POUNDS PER LINEAR FOOT
PNL	PANEL
PP	POLYPROPYLENE
PRC	POINT OF REVERSE CURVATURE
PREFAB	PREFABRICATED
PRELIM	PRELIMINARY
PREP	PREPARE
PRES	PRESSURE
PRI	PRIMARY
PROT	PROTECTION
PS	PIPE SUPPORT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAGE
PT	POINT, POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
R&R	REMOVE AND REPLACE
R&S	REMOVE AND SALVAGE
R	RADIUS
RB	ROCK BERM
RED	REDUCER
REF	REFERENCE
REINF	REINFORCING
REM	REMOVE
REQD	REQUIRED
RET	RETAINING, RETURN
REV	REVISION, REVERSE
RFG	ROOFING
RGH	ROUGH
RND	ROUND
RNG	RUNNING
RO	ROUGH OPENING
ROW	RIGHT-OF-WAY
RSP	ROCK SLOPE PROTECTION
RT	RIGHT
RY	READY
SA	SUPPLY AIR
SAN	SANITARY
SC	SOLID CORE
SCH	SCHEDULE
SEC	SECONDARY, SECONDS
SECT	SECTION
SEP	SEPARATE
SF	SQUARE FOOT, SILT FENCE
SHT	SHEET
SIM	SIMILAR
SL	SLOPE
SLTD	SLOTTED
SLV	SLEEVE
SMLS	SEAMLESS
SOG	SLAB ON GRADE
SPA	SPACING
SPEC	SPECIFICATION
SPLY	SUPPLY
SQ	SQUARE
SR	SHORT RADIUS
SSM	SUBSURFACE SETTLEMENT MONITORING POINT
SST	STAINLESS STEEL
STA	STATION
STD	STANDARD
STIR	STIRRUP
STL	STEEL
STOR	STORAGE
STR	STRUCTURAL, STRAIGHT
SUSP	SUSPENDED
SY	SQUARE YARD
SYM	SYMBOL
SYMM	SYMMETRICAL
T&B	TOP AND BOTTOM
TAN	TANGENT
TBM	TEMPORARY BENCHMARK
TCE	TEMPORARY CONSTRUCTION EASEMENT
TEMP	TEMPORARY, TEMPERATURE
THD	THREAD
THK	THICK
TOB	TOP OF BOLT, TOP OF BERM
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOG	TOP OF GRATING
TOP	TOP OF PLATE
TOPO	TOPOGRAPHY
TOS	TOE OF SLOPE
TOW	TOP OF WALL
TRANS	TRANSITION
TRD	TRENCH DRAIN
TYP	TYPICAL
UG	UNDERGROUND
UM	UTILITY MONITORING POINT
UNO	UNLESS NOTED OTHERWISE
UTIL	UTILITY
V	VENT
VAC	VACUUM
VB	VAPOR BARRIER
VC	VERTICAL CURVE
VEL	VELOCITY
VENT	VENTILATION
VERT	VERTICAL
VIF	VERIFY IN FIELD
VOL	VOLUME
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
W/	WITH
W/O	WITHOUT
W	WATER, WEST
WAS	WASTE ACTIVATED SLUDGE
WD	WIDTH
WL	WATER LEVEL
WLD	WELDED
WM	WIRE MESH
WS	WATERSTOP, WATER SURFACE
WSP	WELDED STEEL PIPE
WT	WEIGHT, WATER TIGHT
WWF	WELDED WIRE FABRIC
XP	EXPLOSION-PROOF
XS	EXTRA STRONG
XSECT	CROSS SECTION
XXS	DOUBLE EXTRA STRONG
YH	YARD HYDRANT
YS	YIELD STRENGTH

NOTES:

1. THESE ABBREVIATIONS APPLY TO ENTIRE SET OF CONTRACT DRAWINGS.
2. LISTING OF ABBREVIATIONS DOES NOT IMPLY THAT ALL ABBREVIATIONS ARE USED IN THE CONTRACT DRAWINGS.
3. ABBREVIATIONS SHOWN ON THIS DRAWING INCLUDE VARIATIONS OF A WORD. FOR EXAMPLE, "MOD" MAY MEAN MODIFY OR MODIFICATION; "INC" MAY MEAN INCLUDED OR INCLUDING AND "REINF" MAY MEAN EITHER REINFORCE OR REINFORCING.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY

HDR

NO	DATE	REVISION	BY
1	04-29-2015	60% DESIGN DRAWINGS	

SONOMA COUNTY WATER AGENCY

SCALE: NONE — DATE: 4/29/2015
DRAWN: R.SALCEDO
REVIEWED:

Sonoma County Water Agency
Russian River - Cotati Intertie Pipeline at Mark West Creek Crossing
SYMBOLS AND ABBREVIATIONS

FILE NAME: 218280_G02.dwg
CONTRACT NUMBER:

DRAWING NUMBER: G2 — SHEET 2 OF 6

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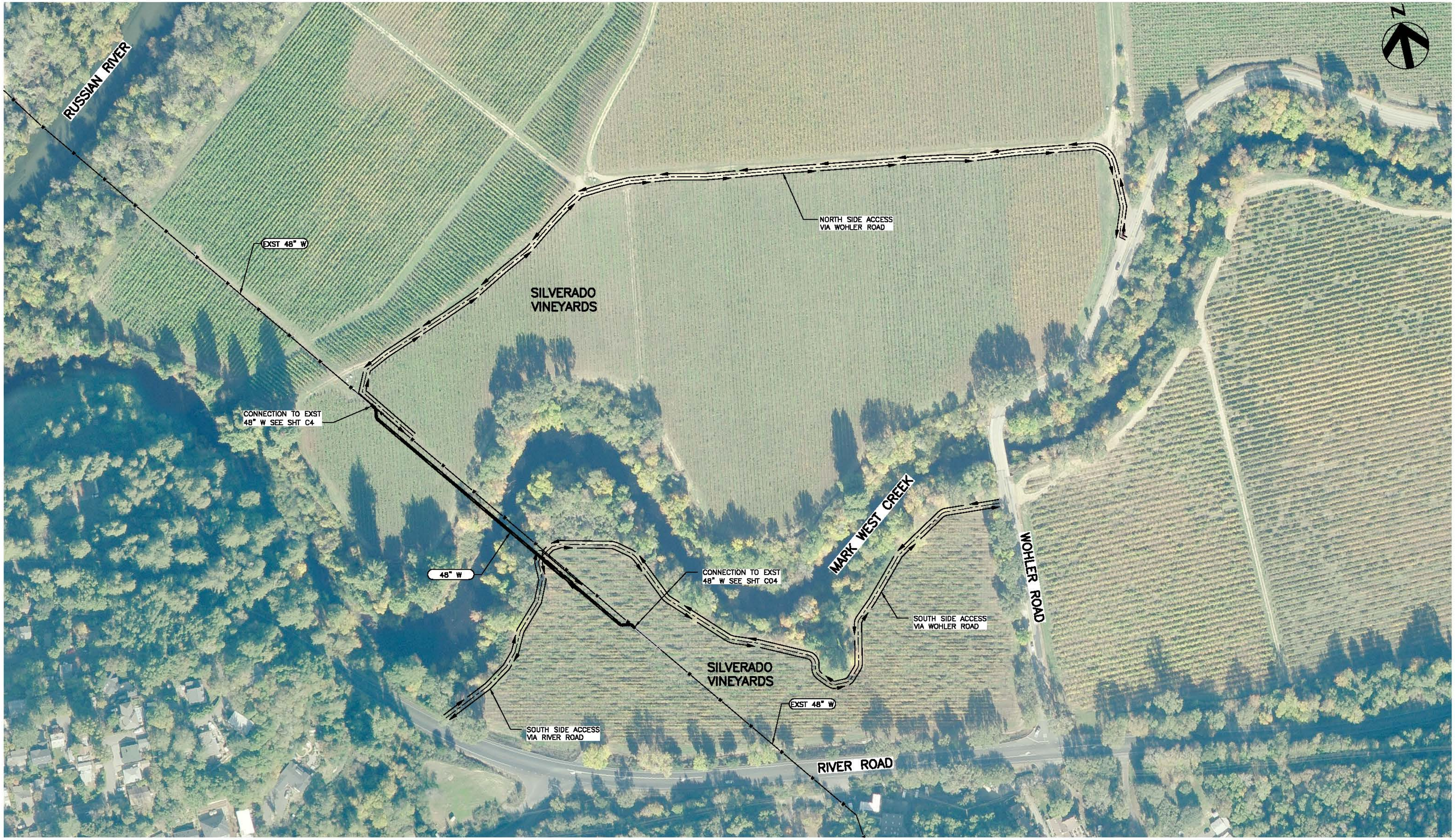

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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

HDR

60% SUBMITTAL
NOT FOR CONSTRUCTION

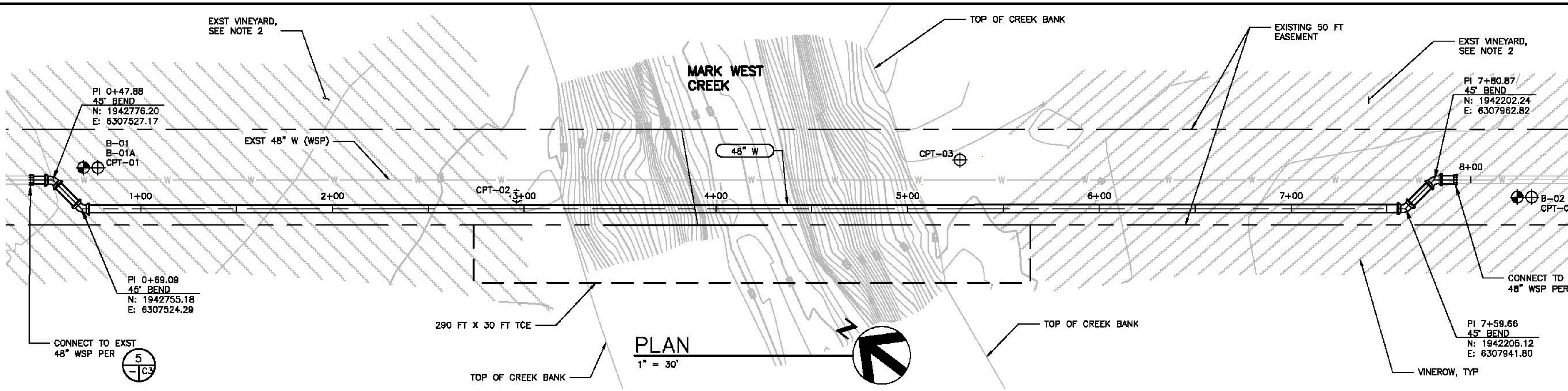
NO	DATE	REVISION	BY
1	04-29-2015	60% DESIGN DRAWINGS	

SONOMA COUNTY WATER AGENCY

SCALE: 1" = 100'
DATE: 4/29/2015
DRAWN: R.SALCEDO
REVIEWED:

Sonoma County Water Agency
Russian River - Cotati Intertie Pipeline at Mark West Creek Crossing
SITE PLAN

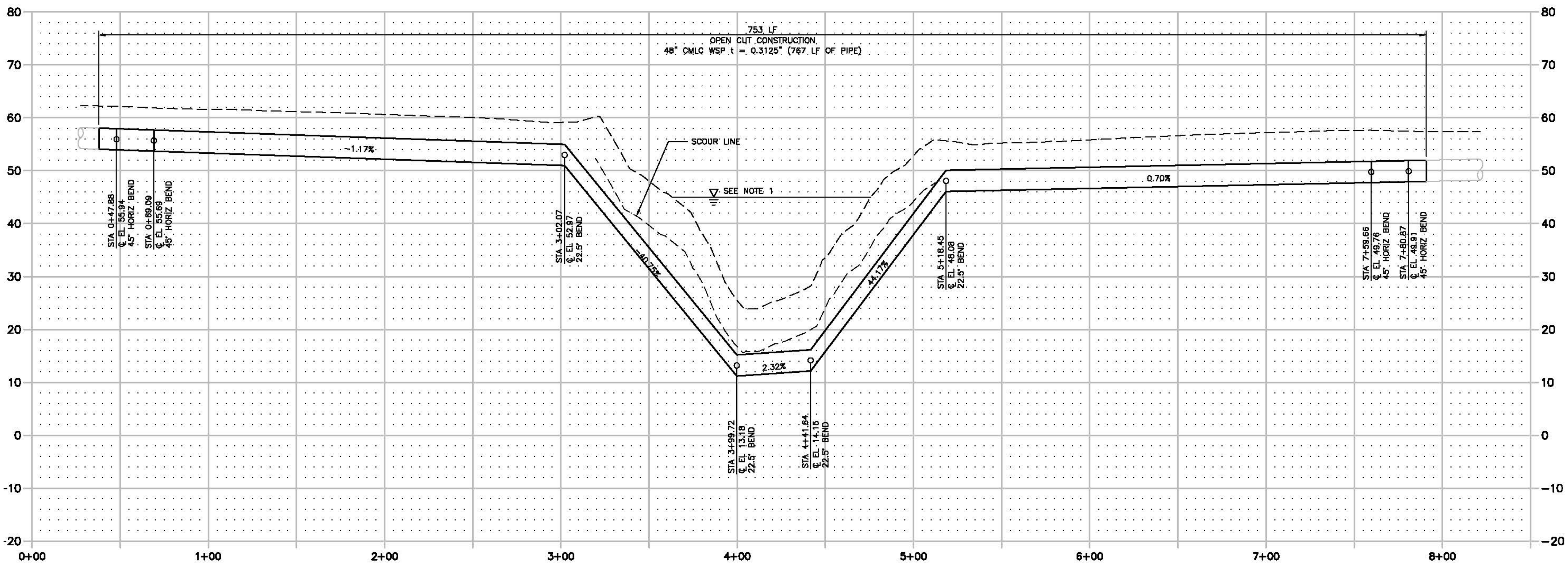
FILE NAME: 218280-C01.dwg
CONTRACT NUMBER:
DRAWING NUMBER: C1
SHEET 3 OF 6



PLAN
1" = 30'

NOTES:

1. GROUNDWATER LEVELS AND WATER LEVELS IN MARK WEST CREEK ARE HIGHLY VARIABLE. CONTRACTOR SHOULD EXPECT TO ENCOUNTER SIGNIFICANT GROUNDWATER DURING CONSTRUCTION.
2. CONTRACTOR SHALL PROTECT IN PLACE ALL VINEYARD PLANTINGS, IRRIGATION SYSTEMS, TRELLIS SYSTEMS, ETC. OUTSIDE SONOMA COUNTY WATER AGENCY RIGHT OF WAY AND TEMPORARY CONSTRUCTION EASEMENTS DURING CONSTRUCTION.



PROFILE
HORIZ SCALE: 1" = 30'
VERT SCALE: 1" = 10'
1 - C2

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

HDR

60% SUBMITTAL
NOT FOR CONSTRUCTION

NO	DATE	REVISION	BY
1	04-29-2015	60% DESIGN DRAWINGS	

SONOMA COUNTY WATER AGENCY

SCALE: 1" = 50' DATE: 4/29/2015
DRAWN: R.SALCEDO
REVIEWED:

Sonoma County Water Agency
Russian River - Cotati Intertie Pipeline at Mark West Creek Crossing
PLAN AND PROFILE

FILE NAME: 0C02.dwg
CONTRACT NUMBER:
DRAWING NUMBER: C2
SHEET 4 OF 6

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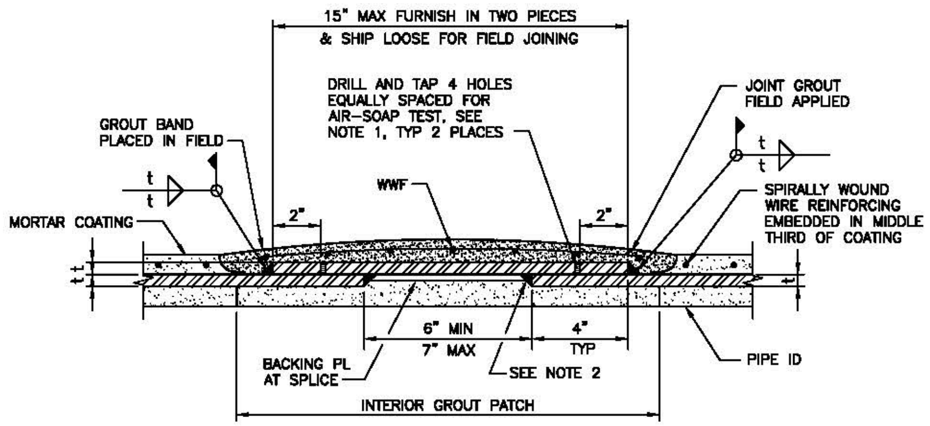


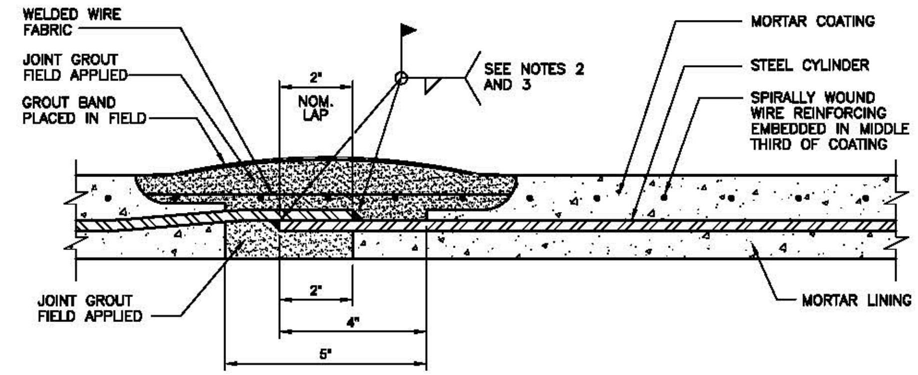
NOTES:

1. DRILL AND TAP 4 HOLES FOR 1/4" NATIONAL PIPE THREAD. AIR AND SOAP TEST JOINT TO 40 PSI. PLUG WELD HOLES AFTER SUCCESSFUL COMPLETION OF TEST. TAP HOLE MAY BE ON THE INSIDE OR OUTSIDE OF JOINT. PROVIDE SUFFICIENT NUMBER OF TAP HOLES TO TEST ALL PARTS OF BUTT STRAP JOINT.
2. PROVIDE ONE-TO-ONE SLOPE CLEARANCE TO FACILITATE FIELD WELDING OF EXTERNAL LAP WELD.
3. HOLD BACK FACTORY-APPLIED COATING 4" FROM ALL FIELD WELDED JOINTS. AFTER WELDING, CLEAN AND APPLY JOINT GROUT AS SHOWN.
4. PROVIDE TWO HANDHOLES PER BUTTSTRAP JOINT. SEE DETAIL 4 THIS SHEET.

BUTT STRAP JOINT DETAIL

NO SCALE

1 / – C3



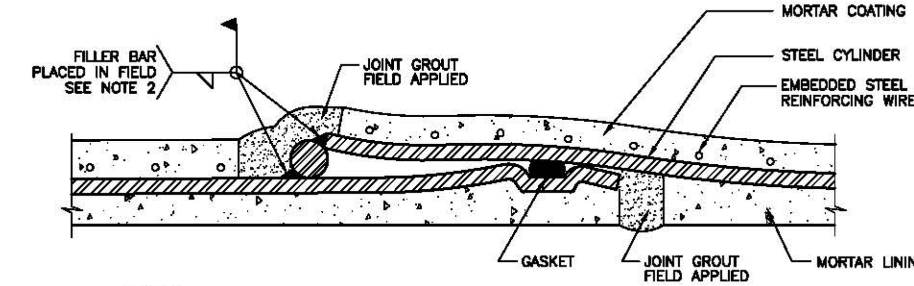
NOTES:

1. AT PIPE JOINTS PROVIDE SHOP HOLD BACK OF LINING, COATING OR BOTH LINING AND COATING AS NECESSARY TO ACCOMMODATE FIELD FILLET WELDS AND PLACEMENT OF FILLER BAR.
2. SIZE TIED JOINT FIELD FILLET WELDS TO ATTAIN DESIGN THRUST RESTRAINT PER SPECIFICATIONS.
3. LAP WELDED JOINTS SHALL BE WELDED BOTH INSIDE AND OUTSIDE.

CMLC STEEL PIPE LAP WELDED JOINT

NO SCALE

2 / – C3



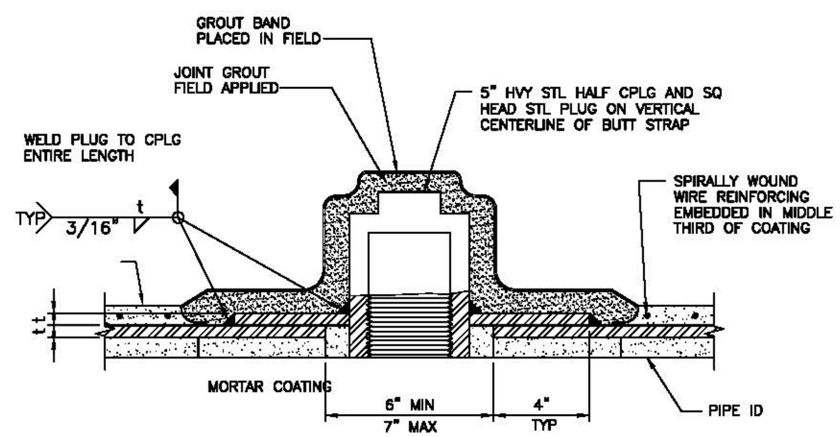
NOTES:

1. AT PIPE JOINTS PROVIDE SHOP HOLD BACK OF LINING, COATING OR BOTH LINING AND COATING AS NECESSARY TO ACCOMMODATE FIELD FILLET WELDS AND PLACEMENT OF FILLER BAR.
2. GASKETED JOINTS SHALL HAVE FILLER BAR SPACED SYMMETRICALLY AROUND CIRCUMFERENCE OF PIPE.
3. SIZE TIED JOINT FIELD FILLET WELDS TO ATTAIN DESIGN THRUST RESTRAINT PER SPECIFICATIONS.

CMLC STEEL PIPE GASKETED JOINT

NO SCALE

3 / – C3



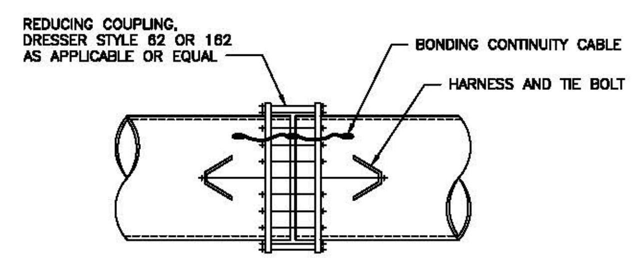
NOTES:

1. PROVIDE HANDHOLES WHERE INDICATED ON THE DRAWINGS AND AS NEEDED FOR PIPELINE INSTALLATION.
2. HOLD BACK FACTORY-APPLIED COATING 4" FROM ALL FIELD-WELDED JOINTS. AFTER WELDING, CLEAN AND APPLY JOINT GROUT AS SHOWN.
3. CONTRACTOR SHALL FILL HANDHOLE WITH CEMENT MORTAR PATCH MATERIAL THAT IS COMPATIBLE TO CEMENT MORTAR LINING AS RECOMMENDED BY THE PIPE MANUFACTURER.

HANDHOLE

NO SCALE

4 / – C3



NOTES:

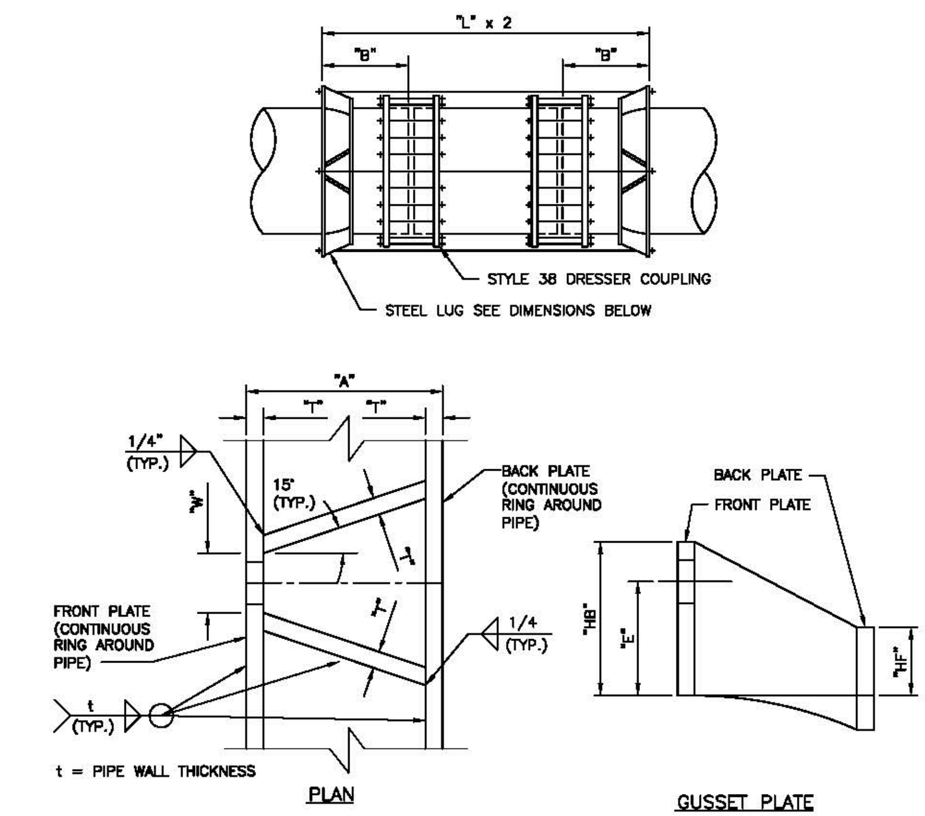
1. PROVIDE COUPLING WHERE NOTED ON DWGS OR WHERE RESTRAINED JOINTS ARE REQUIRED ON STEEL PIPE.
2. DESIGN HARNESS IN ACCORDANCE WITH AWWA M-11 MANUAL STEEL PIPE.

NOTE: THIS DETAIL WILL BE REVISED BASED ON EXISTING PIPELINE AS-BUILT INFORMATION PRIOR TO 90% SUBMITTAL

CONNECTION TO EXST WSP

NO SCALE

5 / C2 C3



LUG DIMENSIONS FOR HARNESS OVER COUPLING 150 PSI

PIPE DIA.	STUD DIA.	NO. BOLTS	A	W	T	HB	E	HOLE DIA.	L	B	HF	DESIGN PRESSURE
DESIGN ENGINEER TO COMPLETE TABLE PER AWWA M11												

HARNESSED COUPLING

NO SCALE

6 / C2 C3

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

C:\pwworking\sac\d0566817\C3

60% SUBMITTAL
NOT FOR CONSTRUCTION

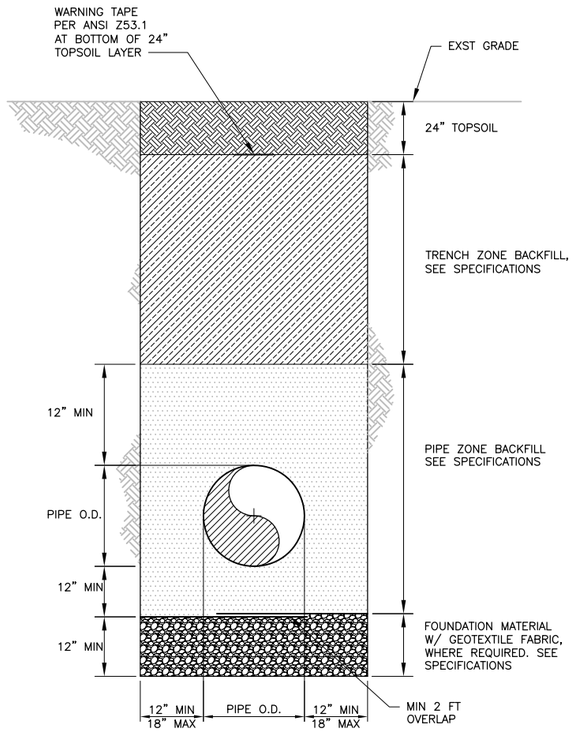
NO	DATE	REVISION	BY
1	04-29-2015	60% DESIGN DRAWINGS	

SONOMA COUNTY WATER AGENCY

SCALE: AS NOTED | DATE: 4/29/2015
DRAWN: R.SALCEDO
REVIEWED:

Sonoma County Water Agency
Russian River - Cotati Intertie Pipeline at Mark West Creek Crossing
STEEL PIPE DETAILS

FILE NAME: C3.dwg
CONTRACT NUMBER:
DRAWING NUMBER: C3
SHEET 5 OF 6



NOTES:

1. TRENCH WALLS SHALL BE VERTICAL. SLOPING OF TRENCH WALLS IS NOT PERMITTED.

TRENCH BACKFILL

NO SCALE

1 / C4

NOTE:

TRENCH DETAIL TO BE FINALIZED AFTER COMPLETION OF ADDITIONAL GEOTECHNICAL INVESTIGATION, PRIOR TO 90% SUBMITTAL

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

60% SUBMITTAL
NOT FOR CONSTRUCTION

NO	DATE	REVISION	BY
1	04-29-2015	60% DESIGN DRAWINGS	

SONOMA COUNTY WATER AGENCY

SCALE: AS NOTED
DATE: 4/29/2015
DRAWN: R,SALCEDO
REVIEWED:

Sonoma County Water Agency
Russian River - Cotati Intertie Pipeline at Mark West Creek Crossing
CIVIL DETAILS

FILE NAME: C4.dwg
CONTRACT NUMBER:
DRAWING NUMBER: C4
SHEET 6 OF 6

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Appendix B

Riparian Habitat Revegetation Plan

Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Mark West Creek Crossing Project

Onsite Mitigation and Riparian Habitat Restoration Plan

Updated March 2016

I. Executive Summary

The Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Mark West Creek Crossing Project (pipeline project) will impact 0.39 acres of mixed riparian forest on the north and south banks of Mark West Creek. The mitigation plan detailed herein will restore and enhance this affected area, plus an additional 0.04 acres of nearby riparian habitat along an adjacent section of the Russian River (see Figure 1, attached). The revegetation effort will:

- Be implemented immediately following completion of the pipeline project
- Provide mitigation at a 1.1:1 ratio (area restored: area disturbed) by planting a total of 0.43 acres of riparian habitat (18,780 square feet) with native plant species.
- Install approximately 500 native riparian tree, shrub and understory container plants and apply an erosion control native seed mix.

II. Revegetation Plan Objectives

This plan provides mitigation for impacts incurred to riparian habitat during implementation of the Mark West Creek Crossing Pipeline Project at a 1.1:1 ratio (area restored: area disturbed). Replanting trees within the disturbed area will help to offset the pipeline project's removal of mature canopy specimens. The fast-growing riparian species as well as the sub-canopy shrub and understory grasses and herbaceous perennials installed will help replace the lost carbon sequestration and habitat complexity/function provided by removed vegetation. Finally, the additional 0.04 acres of riparian habitat (on an adjacent section of the Russian River) to be enhanced with supplemental native plantings will provide a "temporal buffer" while the replacement species within the immediate project area establish and mature. Currently, the area identified for supplemental plantings largely lacks mature canopy and sub-canopy species, and is dominated by a mix of ruderal perennial grasses and forbs. This area will benefit from the addition of native tree, shrub and grass species that improve vegetative diversity and structural complexity.

III. Planting Plan and Implementation Strategy

Native trees with a diameter-at-breast-height (DBH) greater than/equal to four inches will be replaced at a 2:1 ratio (trees planted: trees removed). Preconstruction surveys conducted by Water Agency and project consultant staff determined that approximately 37 native trees require removal ahead of project implementation, the species and quantities of which are summarized below in Table 1.1. Replacements will include the tree species extracted as well as a mix of appropriate sub-canopy species (large woody shrubs) to help ensure structural complexity and diversity within the restored habitat area. Canopy and sub-canopy species will be installed throughout the revegetation areas (as shown in Figure 1, attached), on 10-30 foot centers.

Table 1.1 Native Trees with a DBH greater than/equal to four inches requiring removal for the Mark West Creek Crossing Pipeline Project.

Tree		Number to be Removed*		
Scientific Name	**Common Name**	**North Bank**	**South Bank**	**Total**
Fraxinus latifolia	Oregon ash	10	9	19
Quercus lobata	Valley Oak	3	8	11
Salix ssp.	Willow	3	3	6
Umbellularia californica	California bay laurel	0	1	1
Total		**16**	**21**	**37**

*As determined during pre-construction surveys. Water Agency staff will be present during project implementation to confirm the exact number of trees removed and quantities replanted will be adjusted accordingly to ensure a 2:1 replacement ratio (trees planted: trees removed).

Understory (i.e. small shrub, herbaceous perennial and graminoid) species have been selected based on suitability for the project site and reflect those growing within the surrounding riparian habitat. Understory container plantings will be placed strategically in groups on 1-5 foot centers to mimic natural distribution patterns over approximately 20 percent of the total area available for planting. Placement for all plant types will be based on specie wetland/upland affinity and specific site conditions. Plant species and quantities to be installed are detailed below in Table 1.2. In addition to container plantings, all areas of exposed/disturbed soil will be hydroseeded with the native erosion control seed mix indicated in Table 1.3 (below).

Table 1.2 Mark West Creek Crossing Pipeline Project mitigation planting palette.

Scientific Name	Common Name	Size	Quantity to be installed
Canopy and Sub-Canopy Species			
Baccharis pilularis	Coyote brush	1 gal	5
Calycanthus occidentalis	Western spicebush	1 gal	5
Fraxinus latifolia	Oregon ash	5 gal	20
Physocarpus capitatus	Pacific ninebark	1 gal	10
Quercus lobata	Valley Oak	5 gal	10
Salix sp.	Native willow sp.	cuttings	10
Sambucus mexicana	Blue elderberry	1 gal	10
Umbellularia californica	California bay laurel	5 gal	5
Subtotal			**75**
Understory Species			
Artemisia douglasiana	Mugwort	1 gal	50
Baccharis douglasii	marsh baccharis	1 gal	25
Carex barbarae	Santa Barbara sedge	1 gal	110
Juncus patens	common rush	1 gal	50
Leymus triticoides	creeping wild rye	1 gal	110
Rosa californica	California wild rose	1 gal	30
Rubus ursinus	California blackberry	1 gal	25

Scientific Name	Common Name	Size	Quantity to be installed
Symphoricarpos albus laevigatus	Snowberry	1 gal	25
Subtotal			**425**
TOTAL PLANTS			**500**

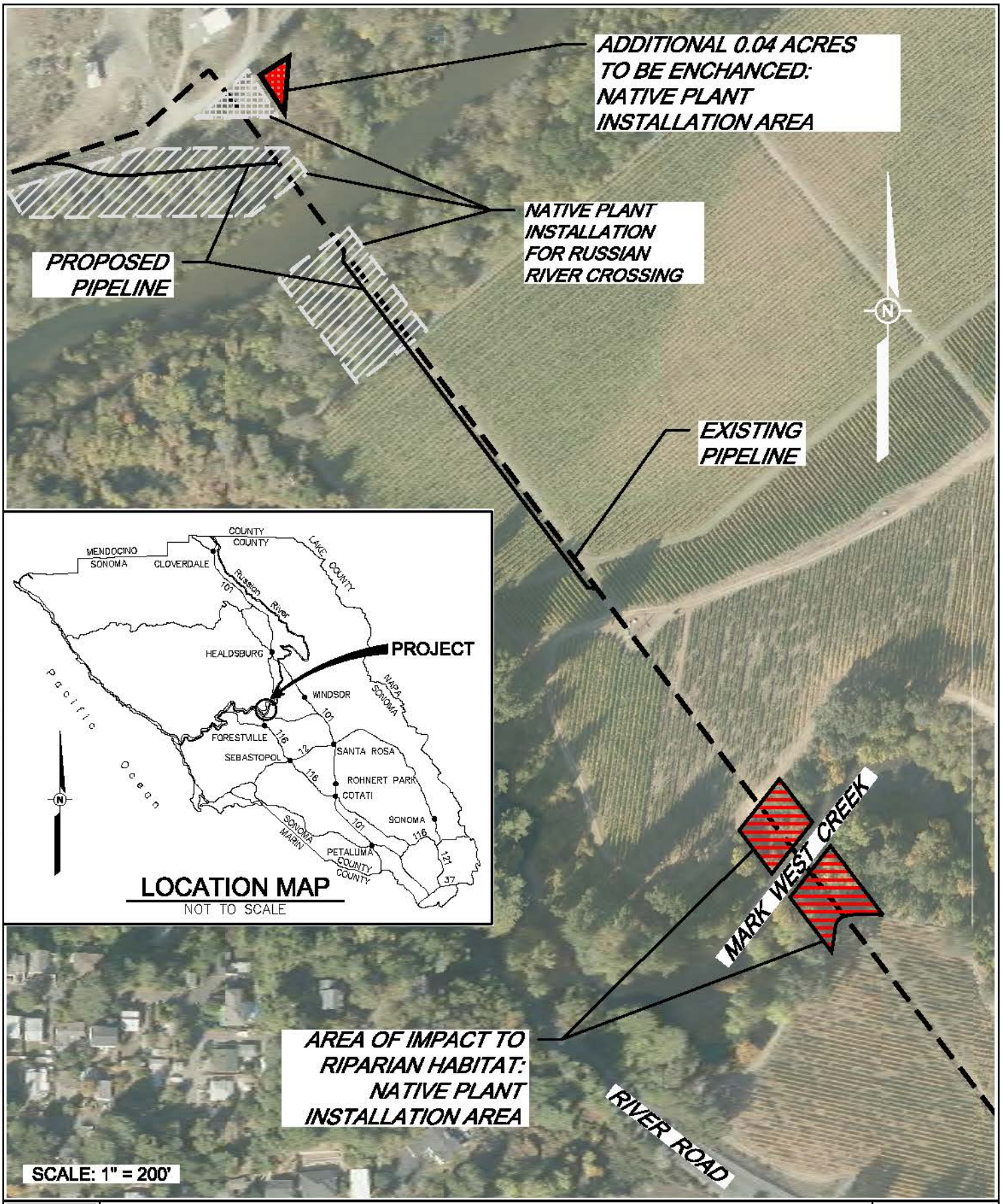
Table 1.3 Mark West Creek Crossing Pipeline Project mitigation native hydroseed mix.

Scientific Name	Common Name	Application Rate*
Le Ballister's "Hold Fast Native Blend"		
Bromus carinatus	California Bromegrass	30lbs/acre
Elymus glaucus	Blue wild rye	
Vulpia microstachys	Three Weeks Fescue	
Eschscholzia californica	California poppy	
Lupinus succulentus	Arroyo blue lupine	
Leymus triticoides	Creeping wild ryre	5lbs/acre

*To be applied to all areas of exposed/disturbed soil within the pipeline project area following project completion

IV. Mitigation Monitoring

Annual plant survival monitoring will take place in the fall (September-November) for 5 years following installation to assess revegetation success. Success criteria for canopy and sub-canopy species (trees and shrubs) will be 75 percent survival. Due to the rhizomatous growth habit of some of the native herbaceous perennial and graminoid understory species to be installed, a qualitative success criteria will be applied to capture the degree of survival, spread, and naturalization of these plant types. Replanting and maintenance/watering will occur as needed to achieve the success criteria goals. Annual results including photo-points, survival rates, and overall site characterization descriptions will be reported to appropriate regulatory agencies.



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SONOMA COUNTY WATER AGENCY

MARK WEST CREEK CROSSING PIPELINE RETROFITTING PROJECT MITIGATION & PLANTING PLAN MAP

FIGURE 1

Appendix C

Mitigation Monitoring Plan (MMP)

Appendix C
Mitigation Monitoring Plan

In compliance with Section 21081.6 of the California Environmental Quality Act, the Sonoma County Water Agency (Water Agency) has prepared this Mitigation Monitoring Plan (MMP) for the Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Russian River Crossing Project. All mitigation measures proposed in the Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Russian River Crossing Project Initial Study and Mitigated Negative Declaration (IS/Mitigated Negative Declaration) have been included in the MMP. Each mitigation measure and the method of monitoring or verifying the completion of the measure are described in the MMP.

Various Water Agency departments/staff members responsible for monitoring or verification of project mitigation measures and their general areas of responsibility are as follows:

The **Project Engineer** is responsible for project design.

The **Technical Writing Section** is responsible for preparation of project specifications.

The **Construction Inspection Section** is responsible for enforcement of the provisions of the project specifications during the construction period.

The **Environmental Resources Section** is responsible for preparation of the MMP, for informing the various departments of their mitigation responsibilities, for distribution of the appropriate reporting forms, for maintenance of the Database that tracks the status of mitigation measures, and for logging and evaluating the effectiveness of the mitigation measures. The Environmental Resources Section is also responsible for implementing and monitoring of some of the mitigation measures.

The **Right-of-Way Section** is responsible for coordinating with private property owners for acquisition of property or temporary and/or permanent easements; and for coordinating any issues concerning property rights with property owners.

The **Operations and Maintenance Division** is responsible for implementation of mitigation measures during the operation and maintenance phase of the project.

The **Water Agency's Board of Directors** approves and adopts the MMP and approves the project specifications.

The following is a description of the project's mitigation measures and the required monitoring/verification. Mitigation measure numbers correspond to the numbers presented in the Initial Study Environmental Checklist.

BIOLOGICAL RESOURCES

Mitigation Measure BIO-1: In-Water Work Period

Work below Ordinary High Water of the Russian River shall be limited to the period from June 15 to September 15 to reduce adverse effects on special-status fish migration. Work conducted within the riparian zone shall be limited to the period from April 15 to October 15.

X	Project Engineer	X	Technical Writing
X	Construction Inspection		Right-of-Way
X	Environmental Resources		Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when the project specifications have included the above provisions and when construction is completed in compliance with the project specifications. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-2a: Environmental Awareness Training

Environmental awareness training shall be implemented to inform all construction personnel of their responsibilities regarding sensitive biological resources that may be present within the project area. The training shall comply with the following measures:

- The training shall be developed by a qualified biologist familiar with the sensitive biological resources that are known or have the potential to occur in the area.
- The training shall be completed by all construction personnel before any work occurs at the project sites, including construction equipment and vehicle mobilization. If new personnel are added to the proposed project, the Contractor shall ensure that new personnel receive training before they start working. The Contractor shall document staff training efforts.
- The training shall provide educational information on the special-status species that are known or have potential to occur in the area, how to identify the species, as well as other sensitive biological resources (e.g., sensitive natural communities, federal and state jurisdictional waters). The training shall also review the required mitigation measures to avoid impacts on the sensitive resources, and penalties for noncompliance with biological mitigation requirements.

	Project Engineer	X	Technical Writing
X	Construction Inspection		Right-of-Way
X	Environmental Resources		Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when the project specifications have included the above provisions and when construction is completed in compliance with the project specifications. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-2b: Construct and Maintain Wildlife Exclusion Fencing

Prior to the initiation of ground-disturbing activities, exclusion fencing shall be erected along the perimeter of excavation areas. Fencing shall be constructed of woven geotextile fabric and be a minimum of two feet high and buried in the soil a minimum of six inches deep. Exclusion fencing shall be inspected by a designated monitor on a daily basis and maintained throughout the duration of the construction.

X	Project Engineer	___	Technical Writing
X	Construction Inspection	___	Right-of-Way
X	Environmental Resources	___	Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when exclusion fencing has been installed and target species have been successfully removed from the project site. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-3: Avoid or Minimize Impacts on Western Pond Turtle

Preconstruction surveys for western pond turtle shall be conducted by a qualified biologist 48 hours before the start of construction activities where suitable habitat exists (i.e., riparian areas, freshwater emergent wetlands, and adjacent undisturbed uplands). Daily preconstruction surveys of all open trenches shall also be conducted by a trained worker each morning, prior to the start of construction activities within open trenches. A qualified biologist will be on call during the construction and if WPT are found, work in the trenches shall not commence until authorized by the qualified biologist. If western pond turtles or their nests are observed during preconstruction or daily surveys, the following measures shall be implemented.

- Western pond turtles found within the construction area shall be allowed to leave on their own volition or shall be relocated by the qualified biologist out of harm's way to suitable habitat immediately upstream or downstream of the project site. If turtles are moved, the qualified biologist shall possess a valid permit from CDFW authorizing the handling of turtles.
- Although unlikely, if an active WPT nest is identified in the work area during preconstruction surveys, the nest will be avoided to the extent feasible. Avoidance shall consist of a buffer area that protects the nest and direct access to the river for hatchlings dispersing from the nest. The extent of the buffer area will be determined in coordination with CDFW. Buffers will be clearly marked with temporary fencing. Construction will not be allowed to commence in the exclusion area until hatchlings have emerged from the nest or the nest is deemed inactive by a qualified biologist. If nest avoidance is infeasible, eggs will be collected by a qualified biologist. Eggs will be incubated and hatched at a qualified facility, such as Sonoma State University Biology Department or Oakland Zoo. Hatchlings will be released in the project area once construction is complete.

X	Project Engineer	___	Technical Writing
X	Construction Inspection	___	Right-of-Way
X	Environmental Resources	___	Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when pre-construction surveys have been completed and target species have been successfully removed from the project site. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-4: Avoid or Minimize Impacts on Foothill Yellow-legged Frog

Prior to commencing construction, a qualified biologist shall conduct one daytime survey for FYLF and other amphibians. The survey shall be conducted no more than 48 hours preceding the onset of construction. If no FYLF are found within the activity area during the pre-activity survey, the work may proceed.

Daily preconstruction surveys of all open trenches shall also be conducted by a trained worker each morning, prior to the start of construction activities within open trenches. A qualified biologist will be on call during the construction work and if FYLF are found, work in the trenches shall not commence until authorized by the qualified biologist.

If FYLF of any life stage (egg, tadpole, or adult) are found, within the activity area during a pre-construction survey or during project activities, the following measures shall be implemented. FYLF found within the construction area shall be allowed to leave on their own volition or shall be relocated by the qualified biologist out of harm's way to suitable habitat immediately upstream or downstream of the project site. If frogs are moved, the qualified biologist shall possess a valid permit from CDFW authorizing the handling of FYLF.

X	Project Engineer	___	Technical Writing
X	Construction Inspection	___	Right-of-Way
X	Environmental Resources	___	Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when pre-construction and daily surveys have been completed and target species have been successfully removed from the project site. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-5: Pre-construction Nesting Bird Survey and Minimization Measures

The Water Agency shall conduct a pre-construction nesting bird survey within 500 feet of the project footprint. The pre-construction survey shall:

- Be conducted by a qualified biologist no more than one week prior to commencement of construction activities or maintenance that could impact nesting birds. The biologist shall have familiarity with special-status species of the area and experience with conducting nesting bird surveys.
- If no nesting birds are encountered, no further mitigation would be required for at least two weeks, unless additional measures are required by regulatory permit conditions obtained for the proposed project.
- Additional pre-construction surveys, specifically for nesting birds, shall be conducted such that no more than two weeks will have lapsed between the survey and construction or maintenance activities.
- If a nesting bird is encountered, the location shall be documented and avoidance and minimization measures shall be prepared by the qualified Water Agency biologist, or consulting biologist in coordination with the Water Agency, and appropriate resource agencies. A no-work buffer shall be established around active bird nests in coordination with the CDFW. Nests will be monitored weekly during construction activities.

X	Project Engineer	___	Technical Writing
X	Construction Inspection	___	Right-of-Way
X	Environmental Resources	___	Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when pre-construction surveys have been completed and protection measures have been implemented to protect nests, and/or when disturbance or destruction of nests have been avoided. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-6a: Avoid Direct Mortality of Bats Roosting in Trees

Not more than six months prior to the onset of work activities, a qualified bat biologist will survey the project site to identify suitable roost sites. If evidence is observed, or if potential roost sites are present in areas where evidence of bat use might not be detectable (such as a tree cavity), an evening survey and/or nocturnal acoustic survey shall be used to determine if the bat colony is active and to identify the specific location of the bat colony.

To avoid impacts to bats, removal of trees that may serve as potential roost sites shall occur between March 1 and April 15 or between August 31 and October 15, unless a focused survey conducted by a qualified bat biologist determines that no bats are present in tree(s) to be removed. A two-stage tree removal process over two consecutive days shall be implemented for trees that may support colonial roosts (i.e., trees with cavities, crevices, or exfoliating bark) unless a focused survey conducted by a qualified bat biologist determines that no bats are present in tree(s) to be removed. The two-stage tree removal process shall be as follows:

> ***Step 1:*** Small branches and small limbs containing no cavity, crevice, or exfoliating bark shall be removed with chainsaws under field supervision by a qualified bat biologist.
>
> ***Step 2:*** The remainder of the tree shall be removed within the following 48 hours. The disturbance caused by chainsaw noise and vibration, coupled with the physical alteration, would cause colonial bat species to abandon the roost tree after nightly emergence for foraging. Removing the tree the next day would prevent re-habituation and re-occupation of the altered tree.

X	Project Engineer	___	Technical Writing
X	Construction Inspection	___	Right-of-Way
X	Environmental Resources	___	Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when pre-construction surveys have been completed and protection measures have been implemented to protect roost sites, and/or when disturbance or destruction of roost sites have been avoided. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-6b: Replace Special-Status Bat Roost Sites
If bat roosts cannot be avoided or it is determined that construction activities or site development may cause roost abandonment, such activities may not commence until roost sites have been replaced. To replace tree roosts, elevated bat houses shall be installed outside of, but near, the construction area. Placement and height will be determined by a qualified bat biologist in consultation with CDFW.

X	Project Engineer	___	Technical Writing
X	Construction Inspection	___	Right-of-Way
X	Environmental Resources	___	Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when pre-construction surveys have been completed and protection measures have been implemented to replace roost sites, and/or when disturbance or destruction of roost sites have been avoided. Monitoring will terminate upon completion of construction.

Mitigation Measure BIO-7: Implement a Riparian Habitat Revegetation Plan

Sites where construction activities result in exposed soil will be stabilized to prevent erosion. For each of these sites, the Water Agency will implement a revegetation plan to mitigate the loss of riparian vegetation.

- Plant species selected for revegetation is based upon surveys of riparian habitat along the Russian River upstream and downstream of the project site.
- Planting requirements in the revegetation plan is based upon species composition and density recommendations associated with the overall habitat enhancement design for the project.
- If soil moisture is deficient, new vegetation will be supplied with supplemental water until vegetation is firmly established.
- Revegetation shall be monitored for five years in order to assess survival until 75 percent survival/cover is achieved.
- If invasive plant species colonize the area, action shall be taken to control their spread; options include hand and mechanical removal and replanting with native species.
- The Water Agency will provide annual reports that include photo-points, survival rates, and site summaries that will be submitted to appropriate regulatory agencies.

X	Project Engineer	___	Technical Writing
X	Construction Inspection	X	Right-of-Way
X	Environmental Resources	___	Operations and Maintenance

Monitoring: The mitigation measure will be considered effective when the revegetation plan has been designed and implemented. Annual monitoring will terminate 5 years after installation of plants.

CULTURAL RESOURCES

Mitigation Measure CUL-1: Stop Work if Historical Resources are Discovered During Project Activities, Evaluate all Identified Historical Resources for Eligibility for Inclusion in the California Register of Historical Resources, and Implement Appropriate Mitigation Measures for Eligible Resources

Prior to initiation of ground-disturbing activities, the Water Agency shall arrange for construction crews to receive training about the kinds of cultural materials that could be present at the project site and the protocols to be followed should any such materials be uncovered during construction. Training shall be conducted by an archaeologist who meets the U.S. Secretary of Interior's professional standards (48 CFR Parts 44738-44739 and Appendix A to 36 CFR 61)[4].. Training may be required during different phases of construction to educate new construction personnel.

If buried historic remains are encountered, all soil-disturbing work in that area and within 100 feet of the find shall be halted until a qualified archaeologist completes a significance evaluation of the find(s) pursuant to Section 106 of the National Historic Preservation Act (36CFR60.4). If any of the resources meets the eligibility criteria identified in Public Resources Code § 5024.1 or CEQA § 21083.2(g), mitigation measures shall be developed and implemented in accordance with CEQA Guidelines § 15126.4(b) before construction resumes.

Historic remains expected in the general area commonly include items of ceramic, glass, and metal. Features that might be present include structure remains (e.g., cabins or their foundations) and pits containing historic artifacts.

For resources eligible for listing in the California Register of Historical Resources that would be rendered ineligible by the effects of project construction, additional mitigation measures shall be implemented. Mitigation measures for historic remains may include (but are not limited to): avoidance; incorporation of sites within parks, greenspace, or other open space; capping the site; deeding the site into a permanent conservation easement; or data recovery excavation. Mitigation measures for historic remains shall be developed in consultation with responsible agencies and, as appropriate, interested parties such as Native American tribes. Implementation of the approved mitigation would be required before resuming any construction activities with potential to affect identified eligible resources at the site.

X	Project Engineer	X	Technical Writing
X	Construction Inspection	____	Right-of-Way
____	Environmental Resources	____	Operations and Maintenance

Monitoring: The mitigation measure will be considered effective if the contractor identifies a potential historical resource site and construction is halted at the site until an evaluation of the site's significance can be made. Monitoring will terminate upon completion of construction.

[4] 48 CFR Parts 44738-44739 and Appendix A to 36 CFR 61. Available: http://www.nps.gov/history/local-law/arch_stnds_9.htm

Mitigation Measure CUL-2: Stop Work if Cultural Resources are Discovered During Project Activities, Evaluate all Identified Cultural Resources for Eligibility for Inclusion in the California Register of Historical Resources, and Implement Appropriate Mitigation Measures for Eligible Resources.

Prior to initiation of ground-disturbing activities, the Water Agency shall arrange for construction crews to receive training about the kinds of archaeological materials that could be present at the project site and the protocols to be followed should any such materials be uncovered during construction. Training shall be conducted by an archaeologist who meets the U.S. Secretary of Interior's professional standards (48 CFR Parts 44738-44739 and Appendix A to 36 CFR 61). Training may be required during different phases of construction to educate new construction personnel.

If any cultural resources are encountered, all soil-disturbing work in that area and within 100 feet of the find shall be halted until a qualified archaeologist who meets the U.S. Secretary of Interior's professional standards (48 CFR Parts 44738-44739 and Appendix A to 36 CFR 61) completes a significance evaluation of the find(s) pursuant to Section 106 of the National Historic Preservation Act (36CFR60.4). If any of the resources meets the eligibility criteria identified in Public Resources Code § 5024.1 or CEQA § 21083.2(g), mitigation measures shall be developed and implemented in accordance with CEQA Guidelines § 15126.4(b) before construction resumes.

Prehistoric archaeological site indicators expected within the general area include: chipped chert and obsidian tools and tool manufacture waste flakes; grinding and hammering implements resembling fist-sized river-tumbled stones; and locally darkened soil that generally contains abundant archaeological specimens.

For resources or a tribal cultural resource (TCR) eligible for listing in the California Register of Historical Resources that would be rendered ineligible by the effects of project construction, additional mitigation measures shall be implemented. Mitigation measures for archaeological resources may include (but are not limited to): avoidance; incorporation of sites within parks, greenspace, or other open space; capping the site; deeding the site into a permanent conservation easement; or data recovery excavation. Mitigation measures for archaeological resources shall be developed in consultation with responsible agencies and, as appropriate, interested parties such as Native American tribes. Native American consultation is required if an archaeological site is determined to be a TCR. Implementation of the approved mitigation would be required before resuming any construction activities with potential to affect identified eligible resources at the site.

X	Project Engineer	X	Technical Writing
X	Construction Inspection	____	Right-of-Way
____	Environmental Resources	____	Operations and Maintenance

Monitoring: The mitigation measure will be considered effective if the contractor identifies a potential cultural resource site and construction is halted at the site until an evaluation of the site's significance can be made. Monitoring will terminate upon completion of construction.

Mitigation Measure CUL-3: Stop Work if Paleontological Resources are Discovered During Project Activities, Evaluate all Identified Resources for Eligibility for Inclusion in the California Register of Historical Resources, and Implement Appropriate Mitigation Measures for Eligible Resources.

Prior to initiation of ground-disturbing activities, the Water Agency shall arrange for construction crews to receive training about the kinds of paleontological materials that could be present at the project site and the protocols to be followed should any such materials be uncovered during construction. Training shall be conducted by a professional paleontologist meeting the professional standards established by the Society of Vertebrate Paleontology (Society of Vertebrate Paleontology 2010) . Training may be required during different phases of construction to educate new construction personnel.

Paleontological resources include fossil remains, as well as fossil localities and rock or soil formations that have produced fossil material. Fossils are the remains or traces of prehistoric animals and plants. Fossils are important scientific and educational resources because of their use in (1) documenting the presence and evolutionary history of particular groups of now-extinct organisms; (2) reconstructing the environments in which these organisms lived; and (3) determining the relative ages of the strata in which they occur, as well as the relative ages of the geologic events that resulted in the deposition of the sediments that formed these strata and in their subsequent deformation.

If any items of paleontological interest are encountered, all soil-disturbing work in that area and within 100 feet of the find shall be halted until a qualified paleontologist meeting the professional standards established by the Society of Vertebrate Paleontology (Society of Vertebrate Paleontology 2010) evaluates the site.

If it is determined by the qualified paleontologist that the proposed project could damage a unique paleontological resource, as defined in the CEQA Guidelines, mitigation shall be implemented in accordance with PRC§ 21083.2 and § 15126.4 of the CEQA Guidelines. If avoidance is not feasible, the paleontologist shall develop and implement a treatment plan consistent with the methods recommended by the Society of Vertebrate Paleontology (SVP 2010). Work shall not be resumed until recommendations received from the qualified paleontologist are implemented.

X	Project Engineer	X	Technical Writing
X	Construction Inspection	____	Right-of-Way
____	Environmental Resources	____	Operations and Maintenance

Monitoring: The mitigation measure will be considered effective if the contractor identifies a potential paleontological resource site and construction is halted at the site until an evaluation of the site's significance can be made. Monitoring will terminate upon completion of construction.

Mitigation Measure CUL-4: Stop Work if Human Remains are Discovered During Project Activities and Implement Applicable Provisions of the California Health and Safety Code.

If human remains are discovered during the proposed project's construction activities, the requirements of California Health and Human Safety Code § 7050.5 shall be followed. Potentially damaging excavation shall halt in the project site, with a minimum radius of 100 feet, and the County Coroner shall be notified. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (California Health and Safety Code § 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact NAHC by phone within 24 hours of making that determination (California Health and Safety Code § 7050[c]). Pursuant to the provisions of Public Resources Code § 5097.98, the NAHC shall identify a Most Likely Descendent (MLD). The MLD designated by the NAHC shall have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods. The Water Agency shall work with the MLD to ensure that the remains are removed to a protected location and treated with dignity and respect.

X	Project Engineer	X	Technical Writing
X	Construction Inspection	____	Right-of-Way
____	Environmental Resources	____	Operations and Maintenance

Monitoring: The mitigation measure will be considered effective if the contractor identifies human remains and construction is halted at the site until an evaluation of the site's significance can be made. Monitoring will terminate upon completion of construction.

Appendix D

Air Quality and Greenhouse Gas
Emissions Estimates

Road Construction Emissions Model, Version 7.1.5.1

Emission Estimates for -> SCWA-Mark West Pipe Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	1.7	10.4	16.2	10.7	0.7	10.0	2.7	0.7	2.1	2,101.0
Drainage/Utilities/Sub-Grade	7.9	37.4	69.3	13.8	3.8	10.0	5.6	3.5	2.1	7,533.2
Paving	2.2	13.4	18.0	1.2	1.2	-	1.1	1.1	-	2,469.4
Maximum (pounds/day)	7.9	37.4	69.3	13.8	3.8	10.0	5.6	3.5	2.1	7,533.2
Total (tons/construction project)	1.6	7.6	13.7	2.7	0.8	2.0	1.1	0.7	0.4	1,526.9

Notes:

Project Start Year ->	2016
Project Length (months) ->	24
Total Project Area (acres) ->	2
Maximum Area Disturbed/Day (acres) ->	1
Total Soil Imported/Exported (yd^3/day)->	4

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> SCWA-Mark West Pipe Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	0.8	4.7	7.4	4.9	0.3	4.5	1.2	0.3	0.9	955.0
Drainage/Utilities/Sub-Grade	3.6	17.0	31.5	6.3	1.7	4.5	2.5	1.6	0.9	3,424.2
Paving	1.0	6.1	8.2	0.5	0.5	-	0.5	0.5	-	1,122.5
Maximum (kilograms/day)	3.6	17.0	31.5	6.3	1.7	4.5	2.5	1.6	0.9	3,424.2
Total (megagrams/construction project)	1.4	6.9	12.4	2.5	0.7	1.8	1.0	0.6	0.4	1,385.0

Notes:

Project Start Year ->	2016
Project Length (months) ->	24
Total Project Area (hectares) ->	1
Maximum Area Disturbed/Day (hectares) ->	0
Total Soil Imported/Exported ($meters^3$/day)->	3

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sume of exhaust and fugitive dust emissions shown in columns K and L.

Road Construction Emissions Model

Version 7.1.5.1

Data Entry Worksheet

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a
yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells C10 through C25.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

Input Type		
Project Name	SCWA-Mark West Pipe	
Construction Start Year	2016	Enter a Year between 2009 and 2025 (inclusive)
Project Type	1	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	24.00	months
Predominant Soil/Site Type: Enter 1, 2, or 3	1	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length	0.15	miles
Total Project Area	2.40	acres
Maximum Area Disturbed/Day	1.00	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported	0.00	yd^3/day
Soil Exported	3.75	yd^3/day
Average Truck Capacity	20	yd^3 (assume 20 if unknown)

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of Construction Months	Program Calculated Months
Grubbing/Land Clearing	0.00	2.40
Grading/Excavation	4.00	9.60
Drainage/Utilities/Sub-Grade	16.00	8.40
Paving	4.00	3.60
Totals	24.00	24.00

2005	%	2006	%	2007	%
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00

NOTE: soil hauling emissions are included in the Grading/Excavation Construction Period Phase, therefore the Construction Period for Grading/Excavation cannot be zero if hauling is part of the project.

Hauling emission default values can be overridden in cells C45 through C46.

Soil Hauling Emissions

User Input	User Override of Soil Hauling Defaults	Default Values
Miles/round trip	3.60	30
Round trips/day	0.20	0
Vehicle miles traveled/day (calculated)		0.72

Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day	0.00	0.01	0.00	0.00	0.00	2.66
Tons per contruction period	0.00	0.00	0.00	0.00	0.00	0.12

Worker commute default values can be overridden in cells C60 through C65.

Worker Commute Emissions

	User Override of Worker Commute Default Values	Default Values
Miles/ one-way trip		20
One-way trips/day		2
No. of employees: Grubbing/Land Clearing	10.00	4
No. of employees: Grading/Excavation	10.00	16
No. of employees: Drainage/Utilities/Sub-Grade	10.00	14
No. of employees: Paving	10.00	10

	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Grading/Excavation (grams/mile)	0.147	0.194	1.744	0.047	0.020	443.650
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.140	0.183	1.649	0.047	0.020	443.708
Emission rate - Paving (grams/mile)	0.133	0.172	1.555	0.047	0.020	443.765
Emission rate - Grubbing/Land Clearing (grams/trip)	0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Grading/Excavation (grams/trip)	0.505	0.323	4.200	0.004	0.003	95.592
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.481	0.305	3.990	0.004	0.003	95.618
Emission rate - Paving (grams/trip)	0.457	0.287	3.779	0.004	0.003	95.644
Pounds per day - Grubbing/Land Clearing	0.000	0.000	0.000	0.000	0.000	0.000
Tons per const. Period - Grub/Land Clear	0.000	0.000	0.000	0.000	0.000	0.000
Pounds per day - Grading/Excavation	0.152	0.185	1.721	0.042	0.018	395.092
Tons per const. Period - Grading/Excavation	0.007	0.008	0.076	0.002	0.001	17.384
Pounds per day - Drainage/Utilities/Sub-Grade	0.145	0.175	1.629	0.041	0.018	395.144
Tons per const. Period - Drain/Util/Sub-Grade	0.025	0.031	0.287	0.007	0.003	69.545
Pounds per day - Paving	0.137	0.165	1.537	0.041	0.017	395.196
Tons per const. Period - Paving	0.006	0.007	0.068	0.002	0.001	17.389
tons per construction period	0.038	0.046	0.430	0.011	0.005	104.318

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.

Water Truck Emissions	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Miles Traveled/Day	Default Values Miles Traveled/Day
Grubbing/Land Clearing - Exhaust	1.00	1		40
Grading/Excavation - Exhaust	1.00	1		40
Drainage/Utilities/Subgrade	1.00	1		40

	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00
Emission rate - Grading/Excavation (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.15	7.84	0.68	0.16	0.09	1666.21
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00
Pound per day - Grading/Excavation	0.01	0.73	0.06	0.01	0.01	148.00
Tons per const. Period - Grading/Excavation	0.00	0.03	0.00	0.00	0.00	6.51
Pound per day - Drainage/Utilities/Subgrade	0.01	0.69	0.06	0.01	0.01	146.80
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.12	0.01	0.00	0.00	25.84

Fugitive dust default values can be overridden in cells C110 through C112.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0
Fugitive Dust - Grading/Excavation		1	10.0	1.1	2.1	0.2
Fugitive Dust - Drainage/Utilities/Subgrade		1	10.0	0.9	2.1	0.2

Off-Road Equipment Emissions

Grubbing/Land Clearing	Default Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	*Program-estimate*	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
	1	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing	pounds per day	0.0	0.0	0.0	0.0	0.0	0.0
	Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0

Grading/Excavation	Default Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	*Program-estimate*	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
	0	Cranes	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1	Crawler Tractors	0.74	4.47	9.52	0.37	0.34	824.89
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
1.00	3	Excavators	0.41	2.79	4.47	0.22	0.20	572.86
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1	Signal Boards	0.36	1.36	1.32	0.10	0.09	157.43
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation	pounds per day	1.5	8.6	15.3	0.7	0.6	1555.2
	Grading	tons per phase	0.1	0.4	0.7	0.0	0.0	68.4

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
	1	Air Compressors	0.66	3.42	4.25	0.35	0.32	507.95
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Excavators	0.40	2.79	4.26	0.21	0.19	572.81
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
	1	Generator Sets	0.49	2.98	3.76	0.26	0.24	487.07
	1	Graders	1.03	3.48	10.01	0.56	0.52	670.13
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Off-Highway Trucks	0.95	4.29	10.39	0.39	0.36	1417.96
1.00		Other Construction Equipment	0.67	3.60	7.11	0.37	0.34	654.06
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Other Material Handling Equipment	0.56	3.17	5.64	0.30	0.28	608.60
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Plate Compactors	0.04	0.21	0.25	0.01	0.01	34.45
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Pumps	0.42	2.46	3.10	0.22	0.21	396.14
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Rubber Tired Dozers	1.26	4.42	13.38	0.62	0.57	944.17
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Signal Boards	0.34	1.35	1.30	0.09	0.08	157.43
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
1.00	2	Tractors/Loaders/Backhoes	0.35	1.57	3.16	0.24	0.22	335.72
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Welders	0.55	1.95	1.78	0.14	0.13	204.74
	Drainage	pounds per day	7.7	35.7	68.4	3.8	3.5	6991.2
	Drainage	tons per phase	1.4	6.3	12.0	0.7	0.6	1230.5

Paving	Default Number of Vehicles		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	*Program-estimate*	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Cement and Mortar Mixers	0.07	0.35	0.42	0.02	0.02	57.88
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Pavers	0.37	2.84	4.01	0.20	0.18	481.97
	1	Paving Equipment	0.29	2.69	3.18	0.16	0.15	426.45
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
1.00	3	Rollers	0.32	1.51	2.88	0.21	0.19	279.45
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Signal Boards	0.32	1.33	1.27	0.08	0.08	157.43
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
	2	Tractors/Loaders/Backhoes	0.67	3.14	6.11	0.46	0.42	671.04
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Paving	pounds per day	2.0	11.9	17.9	1.1	1.0	2074.2
	Paving	tons per phase	0.1	0.5	0.8	0.0	0.0	91.3
Total Emissions all Phases (tons per construction period) =>			1.5	7.2	13.5	0.7	0.7	1390.2

Equipment default values for horsepower and hours/day can be overridden in cells C289 through C322 and E289 through E322.

Equipment		Default Values Horsepower		Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		106		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		10		8
Concrete/Industrial Saws		64		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		142		8
Excavators		163		8
Forklifts		89		8
Generator Sets		66		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		26		8
Pumps		53		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		20		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98		8
Trenchers		81		8
Welders		45		8

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END OF DATA ENTRY SHEET

Appendix E

Supporting Information Related to
Biological Resources

C:\Users\GIS\Documents\ArcGIS_PROJECTS\12021_SCWA_MarkWestCrossing\mxd\Figure_X_CNDDB_Plant_MarkWest_Mar2016.mxd 3/18/2016 PG

CNDDB Occurrences

- Baker's manzanita
- Baker's navarretia
- Burke's goldfields
- California beaked-rush
- Greene's narrow-leaved daisy
- Pennell's bird's-beak
- Peruvian dodder
- Pitkin Marsh lily
- Pitkin Marsh paintbrush
- Rincon Ridge ceanothus
- Rincon Ridge manzanita
- Sebastopol meadowfoam
- Sonoma alopecurus
- Sonoma sunshine
- Thurber's reed grass
- Vine Hill ceanothus
- Vine Hill clarkia
- Vine Hill manzanita
- bristly sedge
- brownish beaked-rush
- congested-headed hayfield tarplant
- dwarf downingia
- golden larkspur
- holly-leaved ceanothus
- many-flowered navarretia
- marsh microseris
- narrow-anthered brodiaea
- pappose tarplant
- round-headed beaked-rush
- serpentine daisy
- showy rancheria clover
- swamp harebell
- thin-lobed horkelia
- white beaked-rush

Baker's navarretia
marsh microseris
Burke's goldfields
Sonoma sunshine
dwarf downingia
congested-headed hayfield tarplant

Burke's goldfields
narrow-anthered brodiaea

serpentine daisy
Pennell's bird's-beak

Rincon Ridge ceanothus

holly-leaved ceanothus
bristly sedge

Sonoma alopecurus

Burke's goldfields
dwarf downingia
Sonoma sunshine
many-flowered navarretia
dwarf downingia
Baker's navarretia
pappose tarplant
Sebastopol meadowfoam

Pitkin Marsh lily

Sebastopol meadowfoam

Vine Hill clarkia
Vine Hill ceanothus
Vine Hill manzanita
Rincon Ridge ceanothus
Rincon Ridge manzanita
thin-lobed horkelia
California beaked-rush
white beaked-rush
round-headed beaked-rush
showy rancheria clover
Pitkin Marsh paintbrush
Pitkin Marsh lily
Thurber's reed grass
Sonoma alopecurus
thin-lobed horkelia
congested-headed hayfield tarplant
brownish beaked-rush
swamp harebell

Baker's manzanita

Sonoma alopecurus

thin-lobed horkelia

Burke's goldfields

Burke's goldfields

Baker's navarretia

congested-headed hayfield tarplant

Baker's manzanita

Sonoma alopecurus

Vine Hill manzanita

Vine Hill ceanothus

Sebastopol meadowfoam

Peruvian dodder

Sonoma alopecurus

Baker's navarretia
Burke's goldfields

Pennell's bird's-beak
Baker's manzanita

golden larkspur

Vine Hill ceanothus

swamp harebell
congested-headed hayfield tarplant
round-headed beaked-rush
brownish beaked-rush
California beaked-rush

Baker's manzanita

Greene's narrow-leaved daisy

Data Source: CNDDB, March 2016 update.

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0 1 2
Miles

Project Site (Construction, Staging, Stockpiles)

5-mile Project Sites Radius

Horizon WATER and ENVIRONMENT

Figure E-1
Special Status Plant Occurrences in the Project Vicinity

Russian River-Cotati Intertie
Pipeline Seismic Hazard Mitigation
at the Mark West Creek Crossing Project

Table E-1. Special-Status Plants Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Rare PlantRank	Habitat	Micro Habitat	Potential to Occur in Project Area
Abronia umbellata var. breviflora	pink sand-verbena	None	None	1B.1	Coastal dunes and coastal strand.	Foredunes and interdunes with sparse cover. A. umb. breviflora is usually the plant closest to the ocean. 0-10 m.	**None.** The Project Area lacks suitable habitat and hydrologic conditions; isolated from nearest extant occurrence near Two Rock.
Agrostis blasdalei	Blasdale's bent grass	None	None	1B.2	Coastal dunes, coastal bluff scrub, coastal prairie. Includes Agrostis blasdalei var. marinensis, which was formerly a state-listed Rare taxon; delisted in 2008.	Sandy or gravelly soil close to rocks; often in nutrient-poor soil with sparse vegetation. 5-150 m.	**None.** The Project Area lacks suitable habitat and hydrologic conditions.
Allium peninsulare var. franciscanum	Franciscan onion	None	None	1B.2	Cismontane woodland, valley and foothill grassland.	Clay soils; often on serpentine. dry hillsides. 50-300 m.	**None**. The Project Area lacks suitable habitat and is outside of extant range.
Alopecurus aequalis var. sonomensis	Sonoma alopecurus	Endangered	None	1B.1	Freshwater marshes and swamps, riparian scrub.	Wet areas, marshes, and riparian banks with other wetland species. 5-360 m.	**None.** The Project Area lacks suitable habitat and is outside of species known range.
Amorpha californica var. napensis	Napa false indigo	None	None	1B.2	Broadleafed upland forest, chaparral, cismontane woodland.	Openings in forest or woodland or in chaparral. 120-2000 m	**None**. The Project Area lacks suitable habitat and mesic alkaline soils.
Arctostaphylos bakeri ssp. bakeri	Baker's manzanita	None	Rare	1B.1	Broadleafed upland forest, chaparral. Entire species State-listed Rare.	Often on serpentine. This is the State-listed Rare taxon, also known as A. bakeri in Title 14. 75-230m.	**None**. The Project Area lacks suitable habitat and soils.
Arctostaphylos bakeri ssp. sublaevis	The Cedars manzanita	None	Rare	1B.2	Chaparral, closed-cone coniferous forest.	In serpentine chaparral and Sargent cypress woodland; typically in canyons and on slopes. 185-760 m.	**None**. The Project Area lacks suitable habitat and soils.
Arctostaphylos densiflora	Vine Hill manzanita	None	Endangered	1B.1	Chaparral.	Acid marine sand. 50-120 m.	**None**. The Project Area lacks suitable habitat and soils.
Arctostaphylos stanfordiana ssp. decumbens	Rincon Ridge manzanita	None	None	1B.1	Chaparral.	Highly restricted endemic to red rhyolites in Sonoma County. 75-310m.	**None**. The Project Area lacks suitable habitat and soils.
Blennosperma bakeri	Sonoma sunshine	Endangered	Endangered	1B.1	Vernal pools, valley and foothill grassland.	Vernal pools and swales. 10-110 m.	**None**. The Project Area lacks suitable habitat and soils.
Brodiaea leptandra	narrow-anthered brodiaea	None	None	1B.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland.	Volcanic substrates. 110-915 m.	**None**. The Project Area lacks suitable habitat and is outside of species known range.
Calamagrostis crassiglumis	Thurber's reed grass	None	None	2B.1	Coastal scrub, freshwater marsh.	Usually in marshy swales surrounded by grassland or coastal scrub. 10-45m.	**None**. The Project Area lacks suitable habitat; known occurrences are restricted to coastal locations.
Calochortus raichei	The Cedars fairy-lantern	None	None	1B.2	Closed-cone coniferous forest, chaparral.	On serpentine. Usually on shaded slopes, but also on barrens and talus. 200-490 m.	**None.** The Project Area lacks suitable habitat; mesic, alkaline soils are not present.
Calystegia purpurata ssp. saxicola	coastal bluff morning-glory	None	None	1B.2	Coastal dunes, coastal scrub, coastal bluff scrub, north coast coniferous forest.	10-105 m.	**None.** The Project Area lacks suitable habitat; no serpentine soils present.
Campanula californica	swamp harebell	None	None	1B.2	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, freshwater marsh, north coast coniferous forest.	Bogs and marshes in a variety of habitats; uncommon where it occurs. 1-405 m.	**None**. The Project Area lacks suitable habitat; suitable soils are not present.
Carex comosa	bristly sedge	None	None	2B.1	Marshes and swamps.	Lake margins, wet places; site below sea level is on a Delta island. -5-1005m.	**None**. The Project Area lacks suitable habitat.
Castilleja uliginosa	Pitkin Marsh paintbrush	None	Endangered	1A	Freshwater marsh.	Last known remaining plant died in 1987; was known from overgrown freshwater marsh. 60 m.	**None**. The Project Area lacks suitable habitat.

Table E-1. Special-Status Plants Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Rare PlantRank	Habitat	Micro Habitat	Potential to Occur in Project Area
Ceanothus confusus	Rincon Ridge ceanothus	None	None	1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland.	Known from volcanic or serpentine soils, dry shrubby slopes. 75-1065 m.	**None**. The Project Area lacks suitable habitat.
Ceanothus foliosus var. vineatus	Vine Hill ceanothus	None	None	1B.1	Chaparral.	Sandy, acidic soil in chaparral. 45-305 m.	**None.** The Project Area lacks suitable habitat.
Ceanothus purpureus	holly-leaved ceanothus	None	None	1B.2	Chaparral.	Rocky, volcanic slopes. 120-640m.	**None**. The Project Area lacks suitable habitat.
Centromadia parryi ssp. parryi	pappose tarplant	None	None	1B.2	Coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland.	Vernally mesic, often alkaline sites. 2-420m.	**None**. The Project Area lacks suitable habitat.
Chlorogalum pomeridianum var. minus	dwarf soaproot	None	None	1B.2	Chaparral.	Serpentine. 305-1000 m.	**None**. The Project Area lacks suitable habitat.
Chloropyron maritimum ssp. palustre	Point Reyes salty bird's-beak	None	None	1B.2	Coastal salt marsh.	Usually in coastal salt marsh with Salicornia, Distichlis, Jaumea, Spartina, etc. 0-10 m.	**None**. The Project Area lacks suitable habitat.
Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	None	None	1B.2	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub.	Closely related to C. pungens. Sandy soil on terraces and slopes. 3-215 m.	**None**. The Project Area lacks suitable habitat.
Chorizanthe cuspidata var. villosa	woolly-headed spineflower	None	None	1B.2	Coastal scrub, coastal dunes, coastal prairie.	Sandy places near the beach. 3-60 m.	**None**. The Project Area lacks suitable habitat.
Chorizanthe valida	Sonoma spineflower	Endangered	Endangered	1B.1	Coastal prairie.	Sandy soil. 10-50 m.	**None.** The Project Area lacks suitable habitat.
Cirsium andrewsii	Franciscan thistle	None	None	1B.2	Coastal bluff scrub, broadleaved upland forest, coastal scrub, coastal prairie.	Sometimes serpentine seeps. 0-150 m.	**None**. The Project Area lacks suitable habitat.
Clarkia imbricata	Vine Hill clarkia	Endangered	Endangered	1B.1	Chaparral, valley and foothill grassland.	Acidic, sandy soil. 50-75 m.	**None**. The Project Area lacks suitable habitat.
Cordylanthus tenuis ssp. capillaris	Pennell's bird's-beak	Endangered	Rare	1B.2	Closed-cone coniferous forest, chaparral.	In open or disturbed areas on serpentine within forest or chaparral. 60-245 m.	**None**. The Project Area lacks suitable habitat.
Cuscuta obtusiflora var. glandulosa	Peruvian dodder	None	None	2B.2	Marshes and swamps (freshwater).	Freshwater marsh. 15-280 m.	**None**. The Project Area lacks suitable habitat.
Cuscuta pacifica var. papillata	Mendocino dodder	None	None	1B.2	Coastal dunes.	Interdune depressions. Annual parasitic vine observed on Gnaphalium, Silene and Lupinus. 0-50 m.	**None.** The Project Area lacks suitable habitat.
Delphinium bakeri	Baker's larkspur	Endangered	Endangered	1B.1	Broadleafed upland forest, coastal scrub, grasslands.	Only site occurs on NW-facing slope, on decomposed shale. Historically known from grassy areas along fencelines too. 80-305 m.	**None**. The Project Area lacks suitable habitat.
Delphinium luteum	golden larkspur	Endangered	Rare	1B.1	Chaparral, coastal prairie, coastal scrub.	North-facing rocky slopes. 0-100 m.	**None.** The Project Area lacks suitable habitat.
Dirca occidentalis	western leatherwood	None	None	1B.2	Broadleafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland.	On brushy slopes, mesic sites; mostly in mixed evergreen & foothill woodland communities. 25-425 m.	**None.** The Project Area lacks suitable habitat.
Downingia pusilla	dwarf downingia	None	None	2B.2	Valley and foothill grassland (mesic sites), vernal pools.	Vernal lake and pool margins with a variety of associates. In several types of vernal pools. 1-445 m.	**None.** The Project Area lacks suitable habitat.
Erigeron greenei	Greene's narrow-leaved daisy	None	None	1B.2	Chaparral.	Serpentine and volcanic substrates, generally in shrubby vegetation. 80-1005 m.	**None.** The Project Area lacks suitable habitat.
Erigeron serpentinus	serpentine daisy	None	None	1B.3	Chaparral.	Serpentine seeps. 60-670 m.	**None.** The Project Area lacks suitable habitat.

Table E-1. Special-Status Plants Known to Occur in the Vicinity of the Project Area

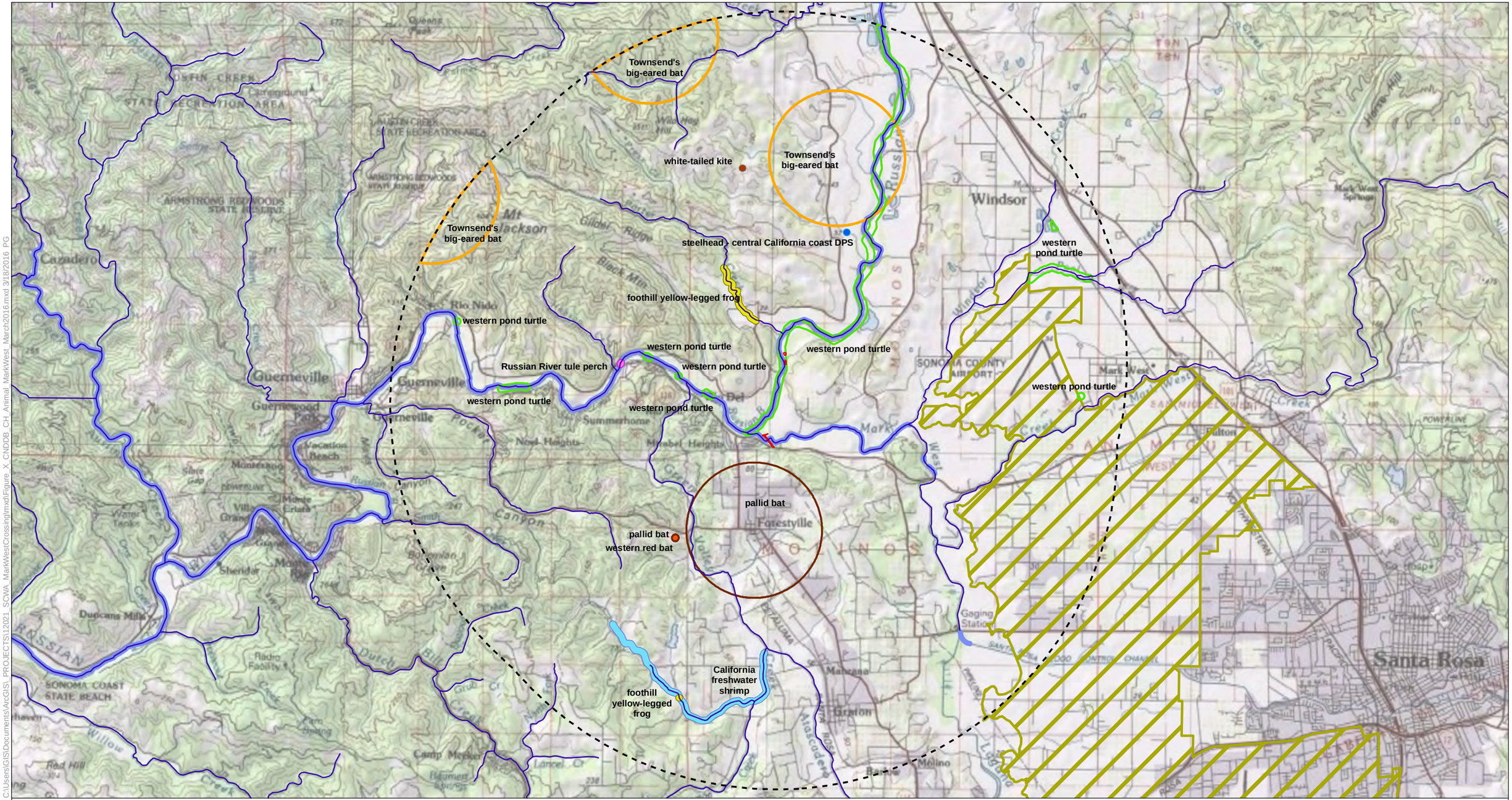
Scientific Name	Common Name	Federal Status	State Status	Rare PlantRank	Habitat	Micro Habitat	Potential to Occur in Project Area
Eriogonum cedrorum	The Cedars buckwheat	None	None	1B.3	Closed-cone coniferous forest.	Serpentine. Barren rock and talus steep slopes. 365-550 m.	**None.** The Project Area lacks suitable habitat.
Erysimum concinnum	bluff wallflower	None	None	1B.2	Coastal dunes, coastal bluff scrub, coastal prairie.	More or less a coastal generalist within coastal habitat types. 0-185 m.	**None.** The Project Area lacks suitable habitat.
Fritillaria liliacea	fragrant fritillary	None	None	1B.2	Coastal scrub, valley and foothill grassland, coastal prairie.	Often on serpentine; various soils reported though usually clay, in grassland. 3-410m.	**None**. The Project Area lacks suitable habitat.
Gilia capitata ssp. chamissonis	blue coast gilia	None	None	1B.1	Coastal dunes, coastal scrub.	3-200 m.	**None.** The Project Area lacks suitable habitat.
Gilia capitata ssp. pacifica	Pacific gilia	None	None	1B.2	Coastal bluff scrub, chaparral, coastal prairie, valley and foothill grassland.	5-1330 m.	**None**. The Project Area lacks suitable habitat.
Gilia capitata ssp. tomentosa	woolly-headed gilia	None	None	1B.1	Coastal bluff scrub, valley and foothill grassland.	Rocky outcrops on the coast, serpentine. 10-220 m.	**None**. The Project Area lacks suitable habitat.
Gilia millefoliata	dark-eyed gilia	None	None	1B.2	Coastal dunes.	2-30 m.	**None.** The Project Area lacks suitable habitat.
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	None	None	1B.2	Valley and foothill grassland.	Grassy valleys and hills, often in fallow fields; sometimes along roadsides. 20-560 m.	**None**. The Project Area lacks suitable habitat.
Hesperevax sparsiflora var. brevifolia	short-leaved evax	None	None	1B.2	Coastal bluff scrub, coastal dunes, coastal prairie.	Sandy bluffs and flats. 0-215 m.	**None**. The Project Area lacks suitable habitat.
Horkelia marinensis	Point Reyes horkelia	None	None	1B.2	Coastal dunes, coastal prairie, coastal scrub.	Sandy flats and dunes near coast; in grassland or scrub plant communities. 5-30m.	**None**. The Project Area lacks suitable habitat.
Horkelia tenuiloba	thin-lobed horkelia	None	None	1B.2	Broadleaved upland forest, chaparral, valley and foothill grassland.	Sandy soils; mesic openings. 50-500 m.	**None.** The Project Area lacks suitable habitat.
Lasthenia burkei	Burke's goldfields	Endangered	Endangered	1B.1	Vernal pools, meadows and seeps.	Most often in vernal pools and swales. 15-600 m.	**None**. The Project Area lacks suitable habitat.
Lasthenia californica ssp. bakeri	Baker's goldfields	None	None	1B.2	Closed-cone coniferous forest, coastal scrub, meadows and seeps, marshes and swamps.	Openings. 60-520 m.	**None**. The Project Area lacks suitable habitat.
Lasthenia californica ssp. macrantha	perennial goldfields	None	None	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub.	5-520 m.	**None**. The Project Area lacks suitable habitat.
Lasthenia conjugens	Contra Costa goldfields	Endangered	None	1B.1	Valley and foothill grassland, vernal pools, alkaline playas, cismontane woodland.	Vernal pools, swales, low depressions, in open grassy areas. 1-470 m.	**None**. The Project Area lacks suitable habitat.
Legenere limosa	legenere	None	None	1B.1	Vernal pools.	In beds of vernal pools. 1-880 m.	**None**. The Project Area lacks suitable habitat.
Leptosiphon jepsonii	Jepson's leptosiphon	None	None	1B.2	Chaparral, cismontane woodland.	Open to partially shaded grassy slopes. on volcanics or the periphery of serpentine substrates. 100-500m.	**None**. The Project Area lacks suitable habitat.
Leptosiphon rosaceus	rose leptosiphon	None	None	1B.1	Coastal bluff scrub.	0-100 m.	**None.** The Project Area lacks suitable habitat.
Lessingia arachnoidea	Crystal Springs lessingia	None	None	1B.2	Coastal sage scrub, valley and foothill grassland, cismontane woodland.	Grassy slopes on serpentine; sometimes on roadsides. 60-200 m.	**None**. The Project Area lacks suitable habitat.
Lilium pardalinum ssp. pitkinense	Pitkin Marsh lily	Endangered	Endangered	1B.1	Cismontane woodland, meadows and seeps, freshwater marsh.	Saturated, sandy soils with grasses and shrubs. 35-65 m.	**None**. The Project Area lacks suitable habitat.
Limnanthes vinculans	Sebastopol meadowfoam	Endangered	Endangered	1B.1	Mesic meadows, vernal pools, valley and foothill grassland.	Swales, wet meadows and marshy areas in valley oak savanna; on poorly drained soils of clays and sandy loam. 15-305 m.	**None**. The Project Area lacks suitable habitat.

Table E-1. Special-Status Plants Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Rare PlantRank	Habitat	Micro Habitat	Potential to Occur in Project Area
Lupinus tidestromii	Tidestrom's lupine	Endangered	Endangered	1B.1	Coastal dunes.	Partially stabilized dunes, immediately near the ocean. 0-100 m.	**None**. The Project Area lacks suitable habitat.
Microseris paludosa	marsh microseris	None	None	1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland.	5-300 m.	**None**. The Project Area lacks suitable habitat.
Navarretia leucocephala ssp. bakeri	Baker's navarretia	None	None	1B.1	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest.	Vernal pools and swales; adobe or alkaline soils. 5-1740 m.	**None**. The Project Area lacks suitable habitat.
Navarretia leucocephala ssp. plieantha	many-flowered navarretia	Endangered	Endangered	1B.2	Vernal pools.	Volcanic ash flow vernal pools. 30-950 m.	**None**. The Project Area lacks suitable habitat.
Piperia candida	white-flowered rein orchid	None	None	1B.2	North coast coniferous forest, lower montane coniferous forest, broadleafed upland forest.	Sometimes on serpentine. Forest duff, mossy banks, rock outcrops & muskeg. 30-1310 m.	**None**. The Project Area lacks suitable habitat.
Pleuropogon hooverianus	North Coast semaphore grass	None	Threatened	1B.1	Broadleafed upland forest, meadows and seeps, North Coast coniferous forest.	Wet grassy, usually shady areas, sometimes freshwater marsh; associated with forest environments. 10-1150 m.	**None**. The Project Area lacks suitable habitat.
Polemonium carneum	Oregon polemonium	None	None	2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest.	0-1830 m.	**None**. The Project Area lacks suitable habitat.
Potentilla uliginosa	Cunningham Marsh cinquefoil	None	None	1A	Freshwater marshes and swamps.	Found in permanent, oligotrophic wetlands .30-40 m.	**None**. The Project Area lacks suitable habitat.
Rhynchospora alba	white beaked-rush	None	None	2B.2	Bogs and fens, meadows and seeps, marshes and swamps.	Freshwater marshes and sphagnum bogs. 60-2040 m.	**None**. The Project Area lacks suitable habitat.
Rhynchospora californica	California beaked-rush	None	None	1B.1	Bogs and fens, marshes and swamps, lower montane coniferous forest, meadows and seeps.	Freshwater seeps and open marshy areas. 45-1010 m.	**None**. The Project Area lacks suitable habitat.
Rhynchospora capitellata	brownish beaked-rush	None	None	2B.2	Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest.	Mesic sites. 45-2000 m.	**None.** The Project Area lacks suitable habitat; Project Area outside the species distribution.
Rhynchospora globularis	round-headed beaked-rush	None	None	2B.1	Marshes and swamps.	Freshwater marsh. 45-60 m.	**None**. The Project Area lacks suitable habitat.
Sidalcea calycosa ssp. rhizomata	Point Reyes checkerbloom	None	None	1B.2	Marshes and swamps.	Freshwater marshes near the coast. 3-75 m.	**None**. The Project Area lacks suitable habitat.
Sidalcea malviflora ssp. purpurea	purple-stemmed checkerbloom	None	None	1B.2	Broadleafed upland forest, coastal prairie.	15-85 m.	**None**. The Project Area lacks suitable habitat.
Streptanthus glandulosus ssp. hoffmanii	Hoffman's bristly jewelflower	None	None	1B.3	Chaparral, cismontane woodland, valley and foothill grassland.	Moist, steep rocky banks, in serpentine and non-serpentine soil. 60-765 m.	**Not Expected**. The Project Area contains marginal habitat and CNDDB occurrences are restricted to coastal quads.
Streptanthus morrisonii ssp. hirtiflorus	Dorr's Cabin jewelflower	None	None	1B.2	Chaparral and closed-cone coniferous forest.	On the serpentine barrens at the head of Austin Creek. 185-820 m.	**None**. The Project Area lacks suitable habitat.
Streptanthus morrisonii ssp. morrisonii	Morrison's jewelflower	None	None	1B.2	Chaparral.	Serpentine outcrops in the Austin Creek area.	**None**. The Project Area lacks suitable habitat.
Thamnolia vermicularis	whiteworm lichen	None	None	2B.1	Chaparral, valley and foothill grassland.	On rocks derived from Wilson Ranch formation sandstone.	**None**. The Project Area lacks suitable habitat.

Table E-1. Special-Status Plants Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Rare PlantRank	Habitat	Micro Habitat	Potential to Occur in Project Area
Trifolium amoenum	showy rancheria clover	Endangered	None	1B.1	Valley and foothill grassland, coastal bluff scrub.	Sometimes on serpentine soil, open sunny sites, swales. Most recently cited on roadside and eroding cliff face. 5-415 m.	**None**. The Project Area lacks suitable habitat.
Trifolium buckwestiorum	Santa Cruz clover	None	None	1B.1	Coastal prairie, broadleafed upland forest, cismontane woodland.	Moist grassland. Gravelly margins. 105-610 m.	**None**. The Project Area lacks suitable habitat.
Trifolium hydrophilum	saline clover	None	None	1B.2	Marshes and swamps, valley and foothill grassland, vernal pools.	Mesic, alkaline sites. 0-300 m.	**None**. The Project Area lacks suitable habitat.
Triphysaria floribunda	San Francisco owl's-clover	None	None	1B.2	Coastal prairie, coastal scrub, valley and foothill grassland.	On serpentine and nonserpentine substrate (such as at Pt. Reyes). 10-160 m.	**None**. The Project Area lacks suitable habitat.
Triquetrella californica	coastal triquetrella	None	None	1B.2	Coastal bluff scrub, coastal scrub.	Grows within 30m from the coast in coastal scrub, grasslands and in open gravels on roadsides, hillsides, rocky slopes, and fields. On gravel or thin soil over outcrops. 10-100 m.	**None**. The Project Area lacks suitable habitat.
Viburnum ellipticum	oval-leaved viburnum	None	None	2B.3	Chaparral, cismontane woodland, lower montane coniferous forest.	215-1400 m.	**Not Expected**. The Project Area contains marginal habitat and is outside of documented ranage.



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Horizon WATER and ENVIRONMENT

CNDDB Occurrences

- California freshwater shrimp
- Russian River tule perch
- Townsend's big-eared bat
- foothill yellow-legged frog
- pallid bat
- steelhead - central California coast DPS
- western pond turtle
- western red bat
- white-tailed kite

Data Source: CNDDB, March 2016 Update,

Critical Habitat

- California tiger salamander (Sonoma)
- Central Coast Chinook salmon
- Central California Coast Steelhead

Data Source: NMFS Critical Habitat 2005

- 5-mile Project Sites Radius
- Project Sites (Construction, Staging, Stockpile)

Figure E-2
Special Status Animal Occurrences and Critical Habitat in the Project Vicinity

Russian River-Cotati Intertie
Pipeline Seismic Hazard Mitigation
at the Mark West Creek Crossing Project

Table E-2. Special-Status Fish and Wildlife Species Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Habitat	Micro Habitat	Potential to Occur in Project Area
Invertebrates						
Syncaris pacifica	California freshwater shrimp	Endangered	Endangered	Endemic to Marin, Napa, & Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy.	Shallow pools away from main streamflow. Winter: undercut banks w/exposed roots. Summer: leafy branches touching water.	**Not Expected.** Potentially suitable habitat occurs in Mark West Creek, but this species has never been recovered in surveys for listed salmonids.
Callophrys mossii bayensis	San Bruno elfin butterfly	Endangered	None	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County.	Colonies are located on steep, north-facing slopes within the fog belt. Larval host plant is Sedum spathulifolium.	**None.** The Project Area is outside the species' range.
Speyeria zerene myrtleae	Myrtle's silverspot butterfly	Endangered	None	Restricted to the foggy, coastal dunes/hills of the Point Reyes peninsula; extirpated from coastal San Mateo County.	Larval foodplant thought to be Viola adunca.	**None.** The Project Area is outside the species' range.
Fish						
Eucyclogobius newberryi	tidewater goby	Endangered	Species of Special Concern	Brackish water habitats along the Calif coast from Agua Hedionda Lagoon, San Diego Co. to the mouth of the Smith River.	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water & high oxygen levels.	**None.** The Project Area lacks suitable habitat.
Hysterocarpus traski pomo	Russian River tule perch	None	Species of Special Concern	Low elevation streams of the Russian River system.	Requires clear, flowing water with abundant cover. They also require deep (> 1 m) pool habitat.	**Possible.** Species is known to inhabit the portion of the Russian River directly adjacent to the Project Area (SCWA 2012).
Lavinia symmetricus navarroensis	Navarro roach	None	Species of Special Concern	Habitat generalists. Found in warm intermittent streams as well as cold, well-aerated streams.	Not specified	**None.** The Project Area is outside the subspecies' range.
Lavinia symmetricus parvipinnis	Gualala roach	None	Species of Special Concern	Found only in the Gualala River.	Not specified	**None.** The Project Area is outside the subspecies' range.
Oncorhynchus kisutch	coho salmon - central California coast ESU	Endangered	Endangered	Federal listing = pops between Punta Gorda & San Lorenzo River. State listing = pops south of Punta Gorda.	Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water & sufficient dissolved oxygen.	**Present.** Juveniles of this species were recently observed in Mark West Creek (markwestwatershed.org).
Oncorhynchus mykiss irideus	steelhead - central California coast DPS	Threatened	None	From Russian River, south to Soquel Cr & to, but not including, Pajaro River. Also San Francisco & San Pablo Bay basins.	Not specified	**Present.** Juvenile and adult migrations occur in the spring and fall/winter, respectively.
Oncorhynchus tshawytscha	Chinook Salmon, California Coastal ESU	Threatened	None	Federal listing refers to wild spawned, coastal, spring & fall runs between Redwood Cr, Humboldt Co & Russian River, Sonoma Co	Not specified	**Present.** This section of Mark West Creek is listed as critical habitat for this species. This species may be present in lower portions of Mark West Creek.
Spirinchus thaleichthys	longfin smelt	Candidate	Threatened	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column.	Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	**None.** The Project Area is outside the subspecies' range.
Thaleichthys pacificus	eulachon	Threatened	Species of Special Concern	Found in Klamath River, Mad River, Redwood Creek & in small numbers in Smith River & Humboldt Bay tributaries.	Spawn in lower reaches of coastal rivers w/ moderate water velocities & bottom of pea-sized gravel, sand & woody debris	**Not Expected.** There are reports of the species occurring in the Russian River, but there distribution would likely be limited to areas downstream of the Project Area.
Amphibians and Reptiles						
Actinemys [=Emys] marmorata	western pond turtle	None	Species of Special Concern	A thoroughly aquatic turtle of ponds, marshes, rivers, streams & irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	**Possible**. Suitable habitat is present and species is known to occur in the vicinity of the Project Area.
Ambystoma californiense	California tiger salamander	Threatened	Threatened	Central Valley DPS federally listed as threatened. Santa Barbara & Sonoma counties DPS federally listed as endangered.	Need underground refuges, especially ground squirrel burrows, & vernal pools or other seasonal water sources for breeding.	**Not Expected.** The Project Area lacks suitable breeding and upland habitat.
Rana boylii	foothill yellow-legged frog	None	Species of Special Concern	Partly-shaded, shallow streams & riffles with a rocky substrate in a variety of habitats.	Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.	**Possible**. Suitable breeding habitat is present in nearby streams, but not in Russian River. Non-breeding habitat is present in the Project Area.

Table E-2. Special-Status Fish and Wildlife Species Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Habitat	Micro Habitat	Potential to Occur in Project Area
Rana draytonii	California red-legged frog	Threatened	Species of Special Concern	Lowlands & foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Requires 11-20 weeks of permanent water for larval development. must have access to estivation habitat.	**Not Expected.** The Project Area lacks suitable breeding. Non-breeding habitat is present, but there are no records of the species in the vicinity of the Project Area.

Table E-2. Special-Status Fish and Wildlife Species Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Habitat	Micro Habitat	Potential to Occur in Project Area
Birds						
Agelaius tricolor	tricolored blackbird	None	Species of Special Concern, State Candidate	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California.	Requires open water, protected nesting substrate, & foraging area with insect prey within a few km of the colony.	**Not Expected.** The Project Area lacks suitable breeding habitat. Non-breeding individuals could occur.
Athene cunicularia	burrowing owl	None	Species of Special Concern	Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation.	Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**None.** The Project Area lacks suitable habitat.
Buteo swainsoni [1]	Swainson's hawk	None	Threatened	Breeds in grasslands with with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees.	Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	**Possible**. The Project Area provides potentially suitable breeding habitat and the species has been observed in the vicinty during the breeding season (ebird.org 2015).
Brachyramphus marmoratus	Marbled Murrelet	Threatened	Endangered	Lower montane coniferous forest, Oldgrowth Redwood	Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	**None.** The Project Area lacks suitable habitat.
Charadrius alexandrinus nivosus	western snowy plover	Threatened	Species of Special Concern	Sandy beaches, salt pond levees & shores of large alkali lakes.	Needs sandy, gravelly or friable soils for nesting.	**None.** The Project Area lacks suitable habitat.
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threatened	Endangered	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems.	Nests in riparian jungles of willow, often mixed with cottonwoods, w/ lower story of blackberry, nettles, or wild grape.	**Not Expected.** The Project Area provides marginally suitable breeding habitat. No recent observation of the species in the vicinty of the Project Area.
Cypseloides niger	black swift	None	Species of Special Concern	Coastal belt of Santa Cruz & Monterey Co; central & southern Sierra Nevada; San Bernardino & San Jacinto Mountains.	Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf; forages widely	**None.** The Project Area lacks suitable habitat.
Elanus leucurus	white-tailed kite	None	Fully Protected	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland.	Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Possible**. The Project Area provides potentially suitable breeding habitat.
Fratercula cirrhata	tufted puffin	None	Species of Special Concern	Open-ocean bird; nests along the coast on islands, islets, or (rarely) mainland cliffs.	Requires sod or earth into which the birds can burrow, on island cliffs or grassy island slopes.	**None.** The Project Area lacks suitable habitat.
Icteria virens [1]	yellow-breasted chat	None	Species of Special Concern	Summer resident; inhabits riparian thickets of willow & other brushy tangles near watercourses.	Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	**Possible**. The Project Area provides potentially suitable breeding habitat and the species has been observed in the vicinty during the breeding season (ebird.org 2015).
Riparia riparia	bank swallow	None	Threatened	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	**None**. The Project Area lacks suitable habitat.
Setophaga petechia [1]	yellow warbler	None	Species of Special Concern	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada.	Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	**Possible**. The Project Area provides potentially suitable breeding habitat.
Strix occidentalis caurina	Northern Spotted Owl	Threatened	Candidate Threatened	Old-growth forests or mixed stands of old-growth & mature trees. Occasionally in younger forests w/patches of big trees.	High, multistory canopy dominated by big trees, many trees w/cavities or broken tops, woody debris & space under canopy.	**None**. The Project Area lacks suitable habitat.

Table E-2. Special-Status Fish and Wildlife Species Known to Occur in the Vicinity of the Project Area

Scientific Name	Common Name	Federal Status	State Status	Habitat	Micro Habitat	Potential to Occur in Project Area
Mammals						
Antrozous pallidus	pallid bat	None	Species of Special Concern	Deserts, grasslands, shrublands, woodlands & forests. Most common in open, dry habitats with rocky areas for roosting.	Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Possible**. Some trees in the Project Area may provide sutiable roost sites.
Arborimus pomo	Sonoma tree vole	None	Species of Special Concern	North coast fog belt from Oregon border to Sonoma Co. In Douglas-fir, redwood & montane hardwood-conifer forests.	Feeds almost exclusively on Douglas-fir needles. Will occasionaly take needles of grand fir, hemlock or spruce.	**None.** The Project Area lacks suitable habitat.
Corynorhinus townsendii	Townsend's big-eared bat	None	Candidate Threatened	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls & ceilings. Roosting sites limiting. extremely sensitive to human disturbance.	**Not expected**. The Project Area lacks typcial habitat components.
Lasiurus blossevillii	western red bat	None	Species of Special Concern	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests.	Prefers habitat edges & mosaics with trees that are protected from above & open below with open areas for foraging.	**Possible**. Some trees in the Project Area may provide sutiable roost sites.
Taxidea taxus	American badger	None	Species of Special Concern	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Needs sufficient food, friable soils & open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	**Not expected**. The Project Area lacks typical habitat components.

1. Species was not included in CNDDB query but was added to list of species known to occur in the vicinity of the project area based on other resoruces (eBird.org 2015).

Plant Species Observed in the Project Area (August 31, 2015)

Scientific Name	Common Name	Nativity	Family	Agriculture	Disturbed/Developed	Ruderal Field	Seasonally Flooded Depressions	Riparian Corridor
Acer negundo	box elder	Native	Sapindaceae				x	x
Artemisia douglasiana	mugwort	Native	Asteraceae				x	x
Arundo donax	giant reed	Exotic	Poaceae					x
Atriplex prostrata	fat hen	Exotic	Chenopodiaceae				x	
Avena sp.	wild oat	Exotic	Poaceae	x	x	x		
Baccharis pilularis	coyote brush	Native	Asteraceae		x			
Brassica nigra	black mustard	Exotic	Brassicaceae					x
Bromus carinatus	California brome	Native	Poaceae	x				
Carduus pycnocephalus	italian thistle	Exotic	Asteraceae			x		
Centaurea solstitialis	yellow star thistle	Exotic	Asteraceae			x		
Cichorium intybus	chicory	Exotic	Asteraceae	x				
Cirsium vulgare	bull thistle	Exotic	Asteraceae					x
Conium maculatum	poisen hemlock	Exotic	Apiaceae		x	x		x
Convolvulus arvensis	field bindweed	Exotic	Convolvulaceae	x	x	x	x	
Cornus sericea ssp. sericea	American dogwood	Native	Cornaceae					x
Crypsis schoenoides	swamp grass	Exotic	Poaceae				x	
Cynodon dactylon	Bermuda grass	Exotic	Poaceae	x	x		x	
Cyperus eragrostis	tall flatsedge	Native	Cyperaceae				x	
Deschampsia elongata	slender hairgrass	Native	Poaceae					x
Elymus triticoides	beardless wildrye	Native	Poaceae				x	x
Erigeron bonariensis	flax-leaved horseweed	Exotic	Asteraceae				x	x
Festuca perennis	Italian ryegrass	Exotic	Poaceae		x	x	x	x
Foeniculum vulgare	fennel	Exotic	Apiaceae				x	
Galium aparine	bedstraw	Native	Rubiaceae					x
Hedera helix	English ivy	Exotic	Araliaceae					x
Helminthotheca echioides	bristly ox-tongue	Exotic	Asteraceae	x	x	x		
Hirschfeldia incana	wild mustard	Exotic	Brassicaceae	x	x		x	
Hordeum brachyantherum	meadow barley	Native	Poaceae				x	
Hordeum sp.	barley	Exotic	Poaceae	x			x	
Juglans hindsii	California black walnu	Native	Juglandaceae					x

Plant Species Observed in the Project Area (August 31, 2015)

Scientific Name	Common Name	Nativity	Family	Agriculture	Disturbed/Developed	Ruderal Field	Seasonally Flooded Depressions	Riparian Corridor
Juncus bufonius	toad rush	Native	Juncaceae				x	
Juncus patens	common rush	Native	Juncaceae					x
Kickxia elatine	fluellin	Exotic	Plantaginaceae	x	x		x	
Lactuca saligna	willowleaf lettuce	Exotic	Asteraceae					x
Lactuca serriola	prickly wild lettuce	Exotic	Asteraceae		x		x	x
Lepidium latifolium	broadleaf pepperwee	Exotic	Brassicaceae				x	
Lotus corniculatus	bird's-foot trefoil	Exotic	FABACEAE			x		
Malus domestica	Gravenstein apple	Exotic	Rosaceae		x			
Malva sp.	-	Exotic	Malvaceae	x				
Melilotus albus	white sweetclover	Exotic	Fabaceae					x
Mentha pulegium	pennyroyal	Exotic	Lamiaceae			x		
Phyla nodiflora	turkey tangle fogfriut	Native	Verbenaceae				x	
Plantago lanceolata	English plantain	Exotic	Plantaginaceae	x	x			
Polygonum aviculare ssp. depressum	prostrate knotweed	Exotic	Polygonaceae	x	x		x	
Polypogon monspeliensis	rabbit's foot grass	Exotic	Poaceae				x	x
Populus fremontii	Fremont's cottonwoo	Native	Salicaceae					x
Pseudognaphalium luteoalbum	Jersey cudweed	Exotic	Asteraceae				x	
Quercus agrifolia	coast live oak	Native	Fagaceae		x			
Quercus lobata	valley oak	Native	Fagaceae					x
Raphanus sativus	wild radish	Exotic	Brassicaceae					x
Rosa sp.	rose		Rosaceae					x
Rubus armeniacus	Himalayan blackberry	Exotic	Rosaceae				x	x
Rubus ursinus	California blackberry	Native	Rosaceae				x	x
Rumex conglomeratus	clustered dock	Exotic	Polygonaceae					x
Rumex crispus	curly dock	Exotic	Polygonaceae				x	
Rumex pulcher	fiddle dock	Exotic	Polygonaceae				x	
Salix exigua	sandbar willow	Native	Salicaceae				x	x
Salix laevigata	red willow	Native	Salicaceae					x
Salix lasiandara var. lasiandra	Pacific willow	Native	Salicaceae				x	x

Plant Species Observed in the Project Area (August 31, 2015)

Scientific Name	Common Name	Nativity	Family	Agriculture	Disturbed/Developed	Ruderal Field	Seasonally Flooded Depressions	Riparian Corridor
Solidago sp.	goldenrod	Native	Asteraceae				x	
Sonchus asper	spiny sowthistle	Exotic	Asteraceae				x	
Spergularia sp.	sand spurrey	-	Caryophyllaceae				x	
Stachys ajugoides	hedge nettle	Native	Lamiaceae					x
Stipa miliaceae	smilo grass	Exotic	Poaceae					x
Taraxacum officinale	dandilion	Exotic	Asteraceae	x	x			
Torilils arvensis	field hedge parsley	Exotic	Apiaceae					x
Toxicodendron diversilobur	poisen oak	Native	Anacardiaceae					x
Urtica dioica ssp. gracilis	stinging nettle	Native	Urticaceae					x
Vinca major	greater periwinkle	Exotic	Apocynaceae					x
Vitis sp.	wild grape	-	Vitaceae	x				x
Xanthium strumarium	rough cocklebur	Native	Asteraceae				x	

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad is (Bodega Head (3812331) or Camp Meeker (3812248) or Cazadero (3812351) or Duncans Mills (3812341) or Guerneville (3812258) or Healdsburg (3812257) or Sebastopol (3812247) or Two Rock (3812237) or Valley Ford (3812238))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Abronia umbellata var. breviflora pink sand-verbena	PDNYC010N4	None	None	G4G5T2	S1	1B.1
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	None	G2G3	S1S2	SSC
Agrostis blasdalei Blasdale's bent grass	PMPOA04060	None	None	G2	S2	1B.2
Allium peninsulare var. franciscanum Franciscan onion	PMLIL021R1	None	None	G5T1	S1	1B.2
Alopecurus aequalis var. sonomensis Sonoma alopecurus	PMPOA07012	Endangered	None	G5T1	S1	1B.1
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SSC
Amorpha californica var. napensis Napa false indigo	PDFAB08012	None	None	G4T2	S2	1B.2
Andrena blennospermatis Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	G2	S2	
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Arborimus pomo Sonoma tree vole	AMAFF23030	None	None	G3	S3	SSC
Arctostaphylos bakeri ssp. bakeri Baker's manzanita	PDERI04221	None	Rare	G2T1	S1	1B.1
Arctostaphylos bakeri ssp. sublaevis The Cedars manzanita	PDERI04222	None	Rare	G2T2	S2	1B.2
Arctostaphylos densiflora Vine Hill manzanita	PDERI040C0	None	Endangered	G1	S1	1B.1
Arctostaphylos stanfordiana ssp. decumbens Rincon Ridge manzanita	PDERI041G4	None	None	G3T1	S1	1B.1
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Blennosperma bakeri Sonoma sunshine	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	None	G2G3	S1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Brodiaea leptandra narrow-anthered brodiaea	PMLIL0C022	None	None	G3?	S3?	1B.2
Calamagrostis crassiglumis Thurber's reed grass	PMPOA17070	None	None	G3Q	S2?	2B.1
Callophrys mossii bayensis San Bruno elfin butterfly	IILEPE2202	Endangered	None	G4T1	S1	
Calochortus raichei The Cedars fairy-lantern	PMLIL0D1L0	None	None	G2	S2	1B.2
Calystegia purpurata ssp. saxicola coastal bluff morning-glory	PDCON040D2	None	None	G4T2T3	S2S3	1B.2
Campanula californica swamp harebell	PDCAM02060	None	None	G3	S3	1B.2
Carex comosa bristly sedge	PMCYP032Y0	None	None	G5	S2	2B.1
Castilleja uliginosa Pitkin Marsh paintbrush	PDSCR0D380	None	Endangered	GXQ	SX	1A
Ceanothus confusus Rincon Ridge ceanothus	PDRHA04220	None	None	G1	S1	1B.1
Ceanothus foliosus var. vineatus Vine Hill ceanothus	PDRHA040D6	None	None	G3T1	S1	1B.1
Ceanothus purpureus holly-leaved ceanothus	PDRHA04160	None	None	G2	S2	1B.2
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
Cerorhinca monocerata rhinoceros auklet	ABNNN11010	None	None	G5	S3	WL
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2	SSC
Chlorogalum pomeridianum var. minus dwarf soaproot	PMLIL0G042	None	None	G5T2T3	S2S3	1B.2
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
Chorizanthe cuspidata var. cuspidata San Francisco Bay spineflower	PDPGN04081	None	None	G2T1	S1	1B.2
Chorizanthe cuspidata var. villosa woolly-headed spineflower	PDPGN04082	None	None	G2T2	S2	1B.2
Chorizanthe valida Sonoma spineflower	PDPGN040V0	Endangered	Endangered	G1	S1	1B.1
Cirsium andrewsii Franciscan thistle	PDAST2E050	None	None	G3	S3	1B.2
Clarkia imbricata Vine Hill clarkia	PDONA050K0	Endangered	Endangered	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
Coastal and Valley Freshwater Marsh						
Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
Coastal Brackish Marsh						
Coastal Terrace Prairie	CTT41100CA	None	None	G2	S2.1	
Coastal Terrace Prairie						
Coccyzus americanus occidentalis	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
western yellow-billed cuckoo						
Coelus globosus	IICOL4A010	None	None	G1G2	S1S2	
globose dune beetle						
Cordylanthus tenuis ssp. capillaris	PDSCR0J0S2	Endangered	Rare	G4G5T1	S1	1B.2
Pennell's bird's-beak						
Corynorhinus townsendii	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Townsend's big-eared bat						
Cuscuta obtusiflora var. glandulosa	PDCUS01111	None	None	G5T4T5	SH	2B.2
Peruvian dodder						
Cuscuta pacifica var. papillata	PDCUS011A2	None	None	G5T1	S1	1B.2
Mendocino dodder						
Cypseloides niger	ABNUA01010	None	None	G4	S2	SSC
black swift						
Danaus plexippus pop. 1	IILEPP2012	None	None	G4T2T3	S2S3	
monarch - California overwintering population						
Delphinium bakeri	PDRAN0B050	Endangered	Endangered	G1	S1	1B.1
Baker's larkspur						
Delphinium luteum	PDRAN0B0Z0	Endangered	Rare	G1	S1	1B.1
golden larkspur						
Dicamptodon ensatus	AAAAH01020	None	None	G3	S2S3	
California giant salamander						
Dirca occidentalis	PDTHY03010	None	None	G2	S2	1B.2
western leatherwood						
Downingia pusilla	PDCAM060C0	None	None	GU	S2	2B.2
dwarf downingia						
Dubiraphia giulianii	IICOL5A020	None	None	G1G3	S1S3	
Giuliani's dubiraphian riffle beetle						
Elanus leucurus	ABNKC06010	None	None	G5	S3S4	FP
white-tailed kite						
Emys marmorata	ARAAD02030	None	None	G3G4	S3	SSC
western pond turtle						
Erigeron greenei	PDAST3M5G0	None	None	G2	S2	1B.2
Greene's narrow-leaved daisy						
Erigeron serpentinus	PDAST3M5M0	None	None	G2	S2	1B.3
serpentine daisy						

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Eriogonum cedrorum The Cedars buckwheat	PDPGN087A0	None	None	G1	S1	1B.3
Erysimum concinnum bluff wallflower	PDBRA160E3	None	None	G3	S3	1B.2
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
Fissidens pauperculus minute pocket moss	NBMUS2W0U0	None	None	G3?	S2	1B.2
Fratercula cirrhata tufted puffin	ABNNN12010	None	None	G5	S1S2	SSC
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Gilia capitata ssp. chamissonis blue coast gilia	PDPLM040B3	None	None	G5T2	S2	1B.1
Gilia capitata ssp. pacifica Pacific gilia	PDPLM040B6	None	None	G5T3T4	S2	1B.2
Gilia capitata ssp. tomentosa woolly-headed gilia	PDPLM040B9	None	None	G5T2	S2	1B.1
Gilia millefoliata dark-eyed gilia	PDPLM04130	None	None	G2	S2	1B.2
Hemizonia congesta ssp. congesta congested-headed hayfield tarplant	PDAST4R065	None	None	G5T1T2	S1S2	1B.2
Hesperevax sparsiflora var. brevifolia short-leaved evax	PDASTE5011	None	None	G4T3	S2	1B.2
Horkelia marinensis Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
Horkelia tenuiloba thin-lobed horkelia	PDROS0W0E0	None	None	G2	S2	1B.2
Hysterocarpus traski pomo Russian River tule perch	AFCQK02011	None	None	G5T4	S4	SSC
Kopsiopsis hookeri small groundcone	PDORO01010	None	None	G4G5	S1S2	2B.3
Lasiurus blossevillii western red bat	AMACC05060	None	None	G5	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Lasthenia burkei Burke's goldfields	PDAST5L010	Endangered	Endangered	G1	S1	1B.1
Lasthenia californica ssp. bakeri Baker's goldfields	PDAST5L0C4	None	None	G3TH	SH	1B.2
Lasthenia californica ssp. macrantha perennial goldfields	PDAST5L0C5	None	None	G3T2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Lasthenia conjugens Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
Lavinia symmetricus navarroensis Navarro roach	AFCJB19023	None	None	G4T1T2	S1S2	SSC
Lavinia symmetricus parvipinnis Gualala roach	AFCJB19025	None	None	G4T1T2	S1S2	SSC
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Leptosiphon jepsonii Jepson's leptosiphon	PDPLM09140	None	None	G3	S3	1B.2
Leptosiphon rosaceus rose leptosiphon	PDPLM09180	None	None	G1	S1	1B.1
Lessingia arachnoidea Crystal Springs lessingia	PDAST5S0C0	None	None	G2	S2	1B.2
Lichnanthe ursina bumblebee scarab beetle	IICOL67020	None	None	G2	S2	
Lilium pardalinum ssp. pitkinense Pitkin Marsh lily	PMLIL1A0H3	Endangered	Endangered	G5T1	S1	1B.1
Limnanthes vinculans Sebastopol meadowfoam	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Lupinus tidestromii Tidestrom's lupine	PDFAB2B3Y0	Endangered	Endangered	G1	S1	1B.1
Microseris paludosa marsh microseris	PDAST6E0D0	None	None	G2	S2	1B.2
Myotis evotis long-eared myotis	AMACC01070	None	None	G5	S3	
Myotis thysanodes fringed myotis	AMACC01090	None	None	G4	S3	
Navarretia leucocephala ssp. bakeri Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
Navarretia leucocephala ssp. plieantha many-flowered navarretia	PDPLM0C0E5	Endangered	Endangered	G4T1	S1	1B.2
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Northern Vernal Pool Northern Vernal Pool	CTT44100CA	None	None	G2	S2.1	
Oncorhynchus kisutch coho salmon - central California coast ESU	AFCHA02034	Endangered	Endangered	G4	S2?	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Oncorhynchus mykiss irideus steelhead - central California coast DPS	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Piperia candida white-flowered rein orchid	PMORC1X050	None	None	G3	S3	1B.2
Pleuropogon hooverianus North Coast semaphore grass	PMPOA4Y070	None	Threatened	G2	S2	1B.1
Polemonium carneum Oregon polemonium	PDPLM0E050	None	None	G3G4	S2	2B.2
Polygonum marinense Marin knotweed	PDPGN0L1C0	None	None	G2Q	S2	3.1
Potentilla uliginosa Cunningham Marsh cinquefoil	PDROS1B4A0	None	None	GH	SH	1A
Rana boylii foothill yellow-legged frog	AAABH01050	None	None	G3	S3	SSC
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Rhynchospora alba white beaked-rush	PMCYP0N010	None	None	G5	S2	2B.2
Rhynchospora californica California beaked-rush	PMCYP0N060	None	None	G1	S1	1B.1
Rhynchospora capitellata brownish beaked-rush	PMCYP0N080	None	None	G5	S1	2B.2
Rhynchospora globularis round-headed beaked-rush	PMCYP0N0W0	None	None	G4	S1	2B.1
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sidalcea calycosa ssp. rhizomata Point Reyes checkerbloom	PDMAL11012	None	None	G5T2	S2	1B.2
Sidalcea malviflora ssp. purpurea purple-stemmed checkerbloom	PDMAL110FL	None	None	G5T1	S1	1B.2
Speyeria zerene myrtleae Myrtle's silverspot butterfly	IILEPJ608C	Endangered	None	G5T1	S1	
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	SSC
Streptanthus glandulosus ssp. hoffmanii Hoffman's bristly jewelflower	PDBRA2G0J4	None	None	G4T2	S2	1B.3
Streptanthus morrisonii ssp. hirtiflorus Dorr's Cabin jewelflower	PDBRA2G0S2	None	None	G2T1	S1	1B.2
Streptanthus morrisonii ssp. morrisonii Morrison's jewelflower	PDBRA2G0S3	None	None	G2T2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Syncaris pacifica California freshwater shrimp	ICMAL27010	Endangered	Endangered	G1	S1	
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thaleichthys pacificus eulachon	AFCHB04010	Threatened	None	G5	S3	
Thamnolia vermicularis whiteworm lichen	NLTES43860	None	None	G3G5	S1	2B.1
Trifolium amoenum two-fork clover	PDFAB40040	Endangered	None	G1	S1	1B.1
Trifolium buckwestiorum Santa Cruz clover	PDFAB402W0	None	None	G2	S2	1B.1
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Triphysaria floribunda San Francisco owl's-clover	PDSCR2T010	None	None	G2	S2	1B.2
Triquetrella californica coastal triquetrella	NBMUS7S010	None	None	G2	S2	1B.2
Tryonia imitator mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	
Usnea longissima Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2
Vespericola marinensis Marin hesperian	IMGASA4140	None	None	G2	S2	
Viburnum ellipticum oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3

Record Count: 137

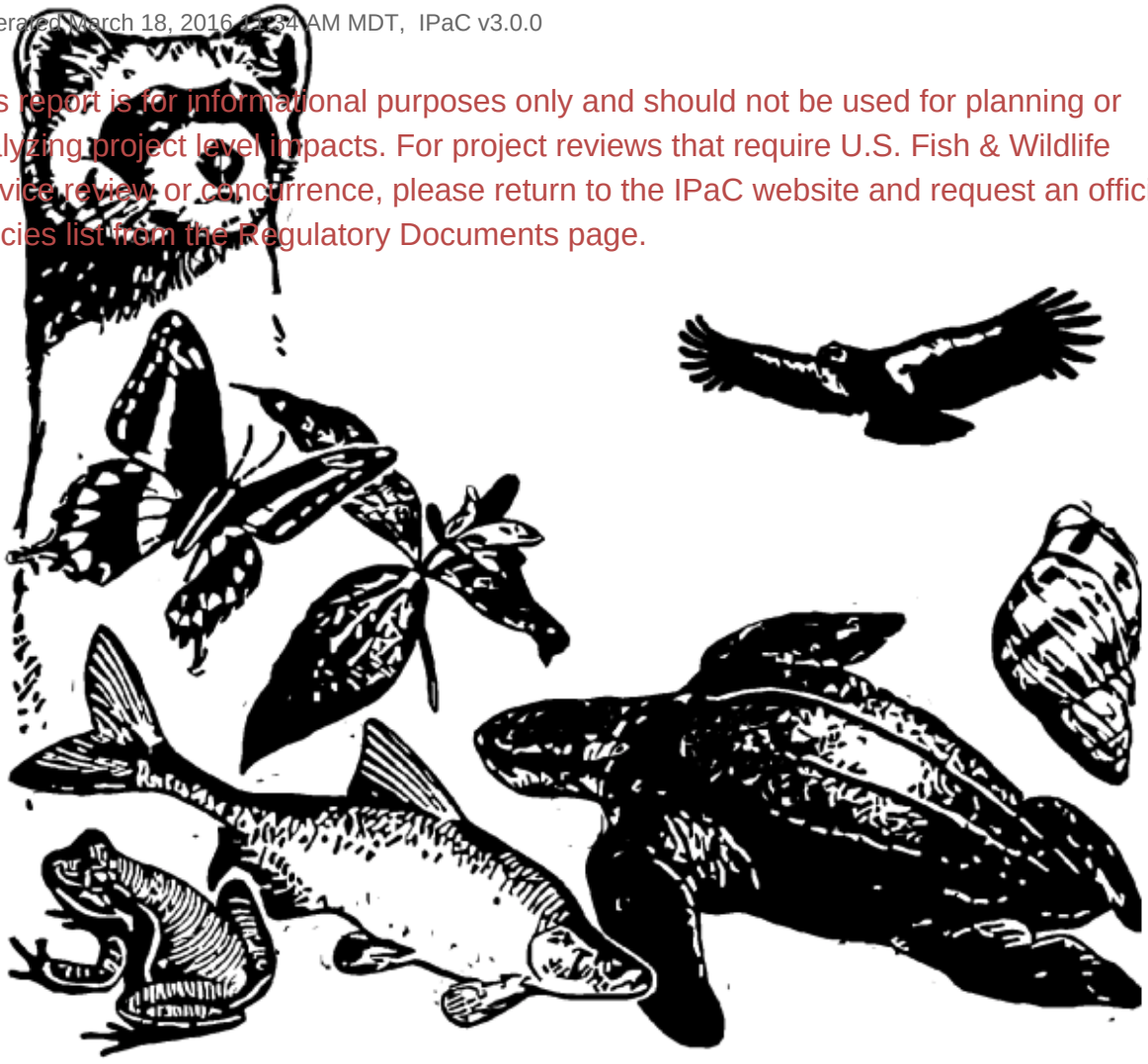
U.S. Fish & Wildlife Service

Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Mark West Crossing Project

IPaC Trust Resources Report

Generated March 18, 2016 12:34 AM MDT, IPaC v3.0.0

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.



IPaC - Information for Planning and Conservation (https://ecos.fws.gov/ipac/): A project planning tool to help streamline the U.S. Fish & Wildlife Service environmental review process.

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U.S. Fish & Wildlife Service

IPaC Trust Resources Report

NAME

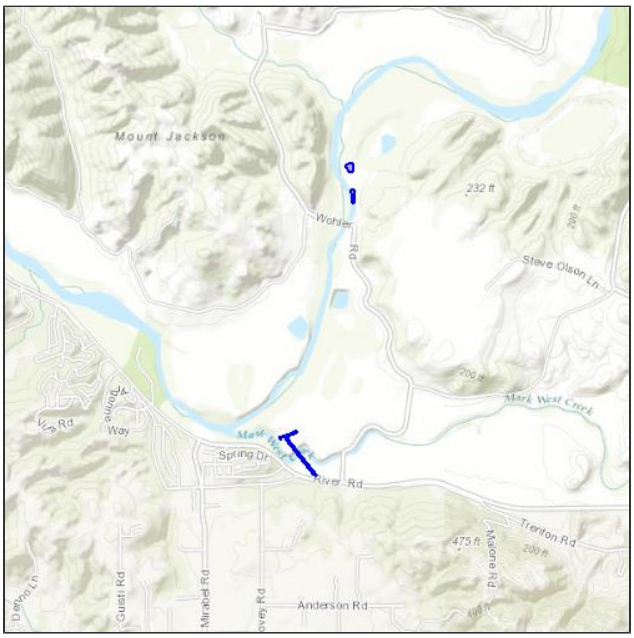
Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Mark West Crossing Project

LOCATION

Sonoma County, California

IPAC LINK

https://ecos.fws.gov/ipac/project/GTTBC-SBF4V-DC7IA-YIYAF-I4LA6M



U.S. Fish & Wildlife Service Contact Information

Trust resources in this location are managed by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the Endangered Species Program of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Documents section in IPaC or from the local field office directly.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Amphibians

California Red-legged Frog Rana draytonii — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=D02D

Birds

Marbled Murrelet Brachyramphus marmoratus — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B08C

Northern Spotted Owl Strix occidentalis caurina — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B08B

Yellow-billed Cuckoo Coccyzus americanus — Threatened

CRITICAL HABITAT

There is **proposed** critical habitat designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06R

Crustaceans

California Freshwater Shrimp Syncaris pacifica — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=K01W

Fishes

Steelhead Oncorhynchus (=Salmo) mykiss — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E08D

Flowering Plants

Baker's Larkspur Delphinium bakeri — Endangered

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q0LZ

Pennell's Bird's-beak Cordylanthus tenuis ssp. capillaris — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q2O8

Sebastopol Meadowfoam Limnanthes vinculans — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q1Y1

Showy Indian Clover Trifolium amoenum — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q238

Sonoma Alopecurus Alopecurus aequalis var. sonomensis — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q01F

Yellow Larkspur Delphinium luteum — Endangered

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q0M2

Insects

Myrtle's Silverspot Butterfly Speyeria zerene myrtleae — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=I00N

San Bruno Elfin Butterfly Callophrys mossii bayensis — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=I00Q

Critical Habitats

This location overlaps all or part of the critical habitat for the following species:

Chinook Salmon Critical Habitat Final designated
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E06D#crithab

Steelhead Critical Habitat Final designated
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E08D#crithab

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.[1] There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

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1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern
  http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/akn-histogram-tools.php

The following species of migratory birds could potentially be affected by activities in this location:

Allen's Hummingbird Selasphorus sasin — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0LI

Bald Eagle Haliaeetus leucocephalus — Bird of conservation concern
Year-round
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008

Bell's Sparrow Amphispiza belli — Bird of conservation concern
Year-round
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HE

Burrowing Owl Athene cunicularia — Bird of conservation concern
Year-round
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0NC

Fox Sparrow Passerella iliaca — Bird of conservation concern
Season: Wintering

Lesser Yellowlegs Tringa flavipes — Bird of conservation concern
Season: Wintering
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MD

Lewis's Woodpecker Melanerpes lewis — Bird of conservation concern
Season: Wintering
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HQ

Long-billed Curlew Numenius americanus — Bird of conservation concern
Season: Wintering
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06S

Nuttall's Woodpecker Picoides nuttallii — Bird of conservation concern
Year-round
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HT

Oak Titmouse Baeolophus inornatus — Bird of conservation concern
Year-round
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MJ

Olive-sided Flycatcher Contopus cooperi — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0AN

Peregrine Falcon Falco peregrinus — Bird of conservation concern
Year-round
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU

Rufous-crowned Sparrow Aimophila ruficeps — Bird of conservation concern
Year-round
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MX

Short-billed Dowitcher Limnodromus griseus — Bird of conservation concern
Season: Wintering
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0JK

Short-eared Owl Asio flammeus — Bird of conservation concern
Season: Wintering
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD

Western Grebe aechmophorus occidentalis — Bird of conservation concern
Year-round
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0EA

Yellow Warbler dendroica petechia ssp. brewsteri — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0EN

Wildlife refuges and fish hatcheries

There are no refuges or fish hatcheries in this location

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

This location overlaps all or part of the following wetlands:

Riverine

R2UBH 60.0 acres

A full description for each wetland code can be found at the National Wetlands Inventory website: http://107.20.228.18/decoders/wetlands.aspx

Appendix F

Noise Impact Calculations

Noise Calculations for the Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Mark West Crossing Project

Construction Equipment 1 (Sonic Pile Driver)	96	dBA at 50 feet
Construction Equipment 2 (Scraper)	89	dBA at 50 feet
Combined Noise at 50 feet (Ltotal at 50 feet)	96.8	dBA
Ltotal=10 log(10^L1/10+10^L2/10)		

Table NOI APPX-1: Noise Threshold Limits and Distances from Project Site to those Limits

Noise Threshold	Threshold Level (dBA)	Distance to Threshold from Middle of Project Site (feet)
Daytime Limit (permanent noise sources) - Sonoma County General Plan	55	6,144
Nighttime Limit (permanent noise sources) - Sonoma County General Plan	45	19,430
Daytime Limit (construction sources) -Federal Transportation Administration (FTA 2006)	90	109

Table NOI APPX-2: Summary Table of Distances to Project Site and Corresponding Noise Levels

Distance (feet) from Middle of Nearest Project Area to Sensitive Receptors	Noise level (dBA) from Project Construction Activities	Noise Level Equation: Leq = EL50-20*log(D/50); where EL50 = Ltotal at 50 feet
50	96.8	
100	90.8	
250	82.8	
445	77.8	Mirabel Campers
500	76.8	
597	75.3	Nearest Residence
650	74.5	
750	73.3	
1000	70.8	
1500	67.2	
1750	65.9	
2000	64.7	
2500	62.8	
3000	61.2	
5000	56.8	

Table NOI APPX-3: Nearest Sensitive Receptors and Distances from Middle of Work Area

Sensitive Receptor	Distance (feet)
Mirabel Park Campers (from middle of work area)	445
Nearest Permanent Residence (from middle of work area)	597

Table NOI APPX- 4: Vibration Source Levels for Construction Equipment (FTA 2006)

	PPV at 25 feet	LV25
Pile Driver (sonic) (typical levels)	0.17	93
Vibratory roller	0.21	94

Table NOI APPX-5: Vibration Calculations with Equations for Loudest Equipment (Vibratory Roller)

Threshold	Distance to Threshold from Middle of Project Site (feet)
Building Threshold (PPV)=PPVref * (25/d)^1.5	36
Human Annoyance Threshold (Lvd)=Lvref-30log(D/25)	158
where PPVref = 0.12 and Lvref = 70	

Vibration Calculations for Other Vibration-Causing Equipment:

Use of a Sonic Pile Driver (typical):		
PPV=PPVref * (25/d)^1.5	32	feet
Lvd=Lvref-30log(D/25)	214	feet

Table NOI APPX- 6: Vibration Levels at Nearest Receptor for Construction Equipment (FTA 200

	LV25	LV445 (Mirabel)
Pile Driver (sonic) (typical levels)	93	55
Vibratory roller	94	56
Large bulldozer	87	49
Loaded trucks	86	48
Jackhammer	79	41
Small bulldozer	58	20

Appendix G

Cultural Resources Report

A Cultural Resources Survey for the Mark West Creek Crossing Project, Forestville, Sonoma County, California

Rachel Hennessy

Thomas M. Origer, M.A.
Registered Professional Archaeologist (#10333)

September 11, 2015

A Cultural Resources Survey for the Mark West Creek Crossing Project, Forestville, Sonoma County, California

Prepared by:

_____

Rachel Hennessy

Thomas M. Origer, M.A.
Registered Professional Archaeologist (#10333)

Tom Origer & Associates
Post Office Box 1531
Rohnert Park, California 94927
(707) 584-8200

Prepared for:

Connie Barton
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, California 95403

September 11, 2015

ABSTRACT

Tom Origer & Associates conducted a cultural resources survey for the Mark West Creek Crossing Project near Forestville, Sonoma County, California. The project consists of replacing the water pipes on the north and south sides of the Mark West Creek. The project is located approximately 2,300 feet east of the intersection of River Road and Mirabel Road. Survey included augering on the north and south sides of the creek. The survey was requested by Connie Barton of the Sonoma County Water Agency.

This study included archival research at the Northwest Information Center, Sonoma State University (NWIC File No. 15-0322), examination of the library and files of Tom Origer & Associates, contact with Native American communities, and field inspection of the project location. Documentation pertaining to this study is on file at the offices of Tom Origer & Associates (File No. 15-073).

Confidentiality Statement: *This report contains information regarding locations of archaeological resources. These resources are vulnerable to vandalism, and are protected by law. To safeguard these resources, this report should not be circulated publicly.*

Synopsis

Project:	Mark West Creek Crossing
Location:	2,300 feet east of the intersection of River Road and Mirabel Road, Forestville, Sonoma County, California.
Quadrangles:	Camp Meeker 7.5' series
Study Type:	Intensive Survey
Scope:	Intensive survey plus augering
Finds:	None

CONTENTS

FIGURES

INTRODUCTION

This report describes a cultural resources survey conducted for the Mark West Creek Crossing Project near Forestville, Sonoma County, California. The study area is in west-central Sonoma County, about 2,300 feet east of the intersection of River Road and Mirabel Road (Figure 1). The study was requested by Connie Barton of the Sonoma County Water Agency. This project includes the replacement of a portion of the Russian River - Cotati Intertie maintained by the Sonoma County Water Agency (SCWA).

This project is subject to Section 106 of the National Historic Preservation Act (NHPA) and the California Environmental Quality Act (CEQA). Documentation pertaining to this study is on file at Tom Origer & Associates (File No. 15-073).

REGULATORY CONTEXT

When a project might affect a cultural resource, the project proponent is required to conduct an assessment to determine whether the effect may be one that is significant. Consequently, it is necessary to determine the importance of resources that could be affected. Because this project will have potential permitting from both state and federal agencies, Section 106 of the National Historic Preservation Act and the California Environmental Quality Act will apply to the work.

Under Section 106, when a federal agency is involved in an undertaking, it must take into account the effects of the undertaking on historic properties (36CFR Part 800). Compliance with Section 106 requires that agencies make an effort to identify historic properties that might be affected by a project, and gather information to evaluate their eligibility for inclusion on the National Register of Historic Places (National Register). Pursuant to Section 106, the goals of this study were to: 1) identify all historic resources within the project area; 2) offer a preliminary evaluation of the significance of the indentified resources; 3) determine resource vulnerability to adverse impacts that could arise from project activities; and 4) offer recommendations designed to protect historic resource values, as warranted.

The California Environmental Quality Act (CEQA) requires that cultural resources be considered during the environmental review process. This is achieved by an inventory of resources within a study area and by assessing the potential that cultural resources could be affected by development. This cultural resources survey was designed to satisfy environmental issues specified in the CEQA and its guidelines (Title 14 CCR §15064.5) by: (1) identifying all cultural resources within the project area; (2) offering a preliminary significance evaluation of the identified cultural resources; (3) assessing resource vulnerability to effects that could arise from project activities; and (4) offering suggestions designed to protect resource integrity, as warranted.

Resource Definitions

Cultural resources are classified by the State Office of Historic Preservation (OHP) as sites, buildings, structures, objects and districts, and each is described by OHP (1995) as follows.

> **Site.** A site is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure.

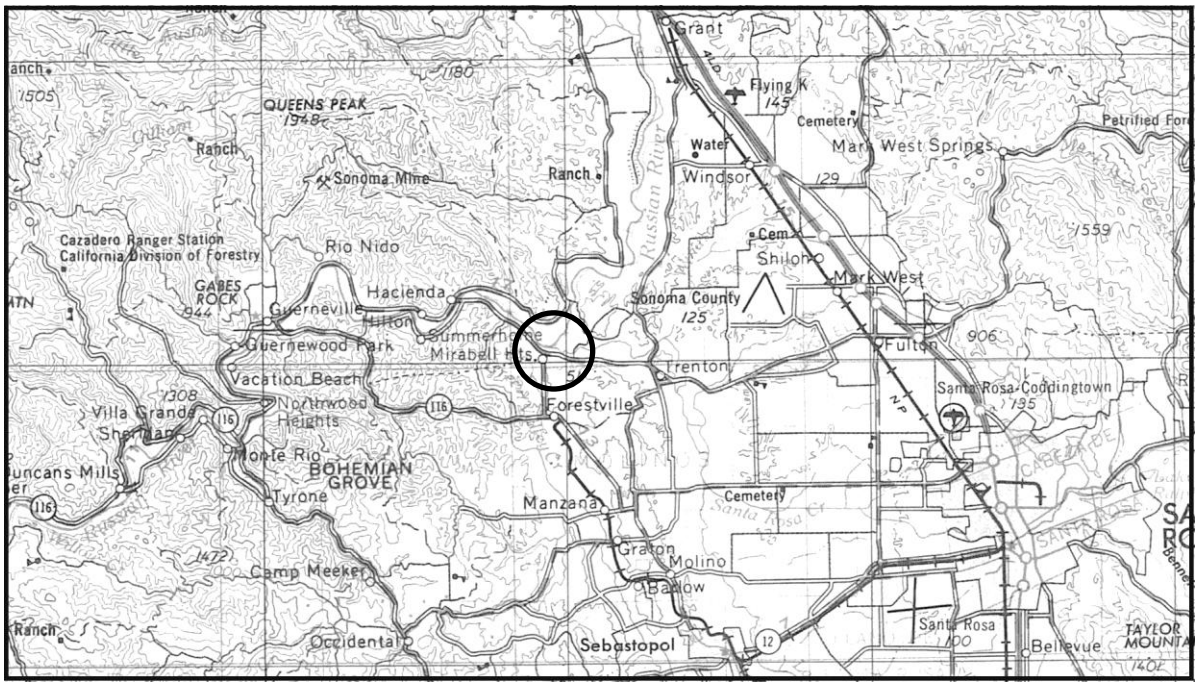

Figure 1. Project vicinity (adapted from the 1970 Santa Rosa 1:250,000-scale USGS map).

Building. A building, such as a house, barn, church, hotel, or similar construction, is created principally to shelter any form of human activity. "Building" may also be used to refer to a historically and functionally related unit, such as a courthouse and jail, or a house and barn.

Structure. The term "structure" is used to distinguish from buildings those functional constructions made usually for purposes other than creating human shelter.

Object. The term "object" is used to distinguish from buildings and structures those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed. Although it may be, by nature or design, movable, an object is associated with a specific setting or environment.

District. A district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development.

Significance Criteria

Under Section 106, the importance of a historic resource is evaluated in terms of National Register criteria put forth in 36CFR60, as follows:

The quality of significance is present in properties that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. That embody the distinct characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded or may be likely to yield, information important in prehistory or history.

Under CEQA, the importance of a resource is measured in terms of criteria for inclusion on the California Register of Historical Resources (Title 14 CCR, §4852(a)) as listed below. A resource may be important if it meets any one of the criteria below, or if it is already listed on the California Register of Historical Resources or a local register of historical resources.

An important historical resource is one which:

1. Is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
2. Is associated with the lives of persons important to local, California, or national history.
3. Embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of a master or possesses high artistic values.
4. Has yielded, or may be likely to yield, information important to the pre-history or history of the local area, California, or the nation.

In addition to meeting one or more of the above criteria, eligibility for the California Register requires that a resource retains sufficient integrity to convey a sense of its significance or importance. Seven elements are considered key in considering a property's integrity: location, design, setting, materials, workmanship, feeling, and association.

As part of the determination made pursuant to Section 21080.1 of the CEQA, the lead agency shall determine whether the project may have a significant effect on unique archaeological resources. If the lead agency determines that the project may have a significant effect on unique archaeological resources, the environmental impact report shall address the issue of those resources.

A "unique archaeological resource" consists of an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.

3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

The California Office of Historic Preservation (OHP) suggests that all resources over 45 years old be recorded for inclusion in the OHP filing system (OHP 1995:2), although professional judgment is urged in determining whether a resource warrants documentation.

PROJECT SETTING

Study Area Location and Description

The study area is located approximately 2,300 feet east of the intersection of River Road and Mirabel Road near the community of Forestville, as shown on the Camp Meeker, California, 7.5' USGS topographic quadrangle (Figure 2). The project consists of replacing pipelines and installing other various supporting components on both sides of Mark West Creek.

Soil in the project area belongs to the Yolo series which is described as overwash, with 0% to 5% slope (Miller 1972:Sheet 72). This soil is commonly found near the Russian River. In an uncultivated state, it supports the growth of forbs, shrubs, wild berry vines, and scattered oak trees. During cultivation, it is used for the growth of orchards, vineyards, row crops, and pastures (Miller 1972:87, 88).

Cultural Setting

Archaeological evidence indicates that human occupation of California began at least 13,000 years ago (Erlandson *et al*. 2007:59). Early occupants appear to have had an economy based largely on hunting, with limited exchange, and social structures based on the extended family unit. Later, milling technology and an inferred acorn economy were introduced. This diversification of economy appears to be coeval with the development of sedentism and population growth and expansion. Sociopolitical complexity and status distinctions based on wealth are also observable in the archaeological record, as evidenced by an increased range and distribution of trade goods (e.g., shell beads, obsidian tool stone), which are possible indicators of both status and increasingly complex exchange systems.

At the time of European settlement, the study area was situated in an area controlled by the Southern Pomo (Barrett 1908; McLendon and Oswalt 1978). The Southern Pomo were hunter-gatherers who lived in rich environments that allowed for dense populations with complex social structures (Barrett 1908; Kroeber 1925). They settled in large, permanent villages about which were distributed seasonal camps and task-specific sites. Primary village sites were occupied continually throughout the year and other sites were visited in order to procure particular resources that were especially abundant or available only during certain seasons. Sites often were situated near fresh water sources and in ecotones where plant life and animal life were diverse and abundant. For more information about the Pomo see Bean and Theodoratus (1978), Kniffen (1939), and Stewart (1943).

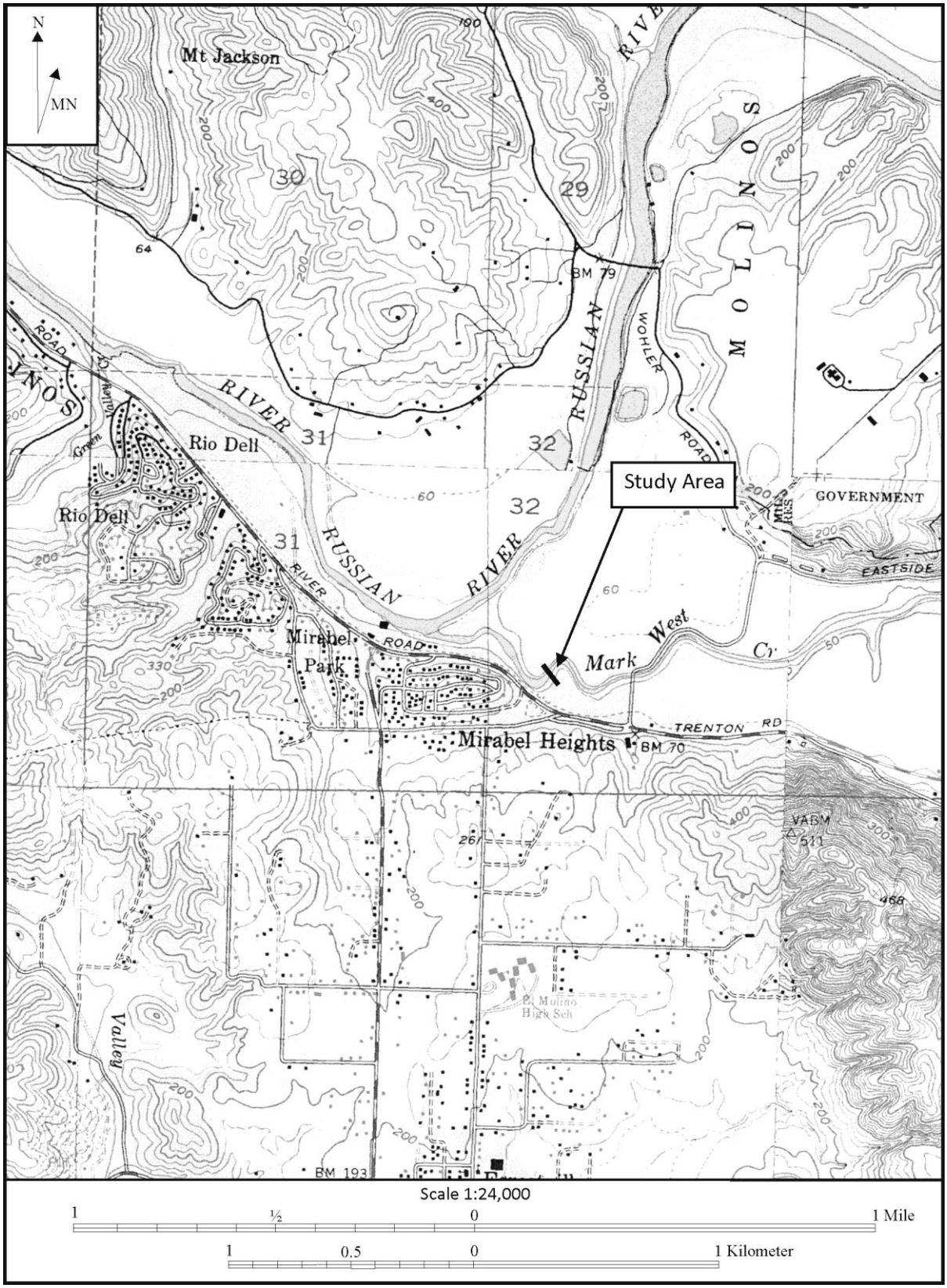

Figure 2. Study location (adapted from the Camp Meeker, Guerneville, Healdsburg, and Sebastopol 7.5' USGS maps dated 1971, 1973, 1980, and 1980, respectively).

STUDY PROCEDURES AND FINDINGS

Native American Contact

A letter was sent to the State of California's Native American Heritage Commission seeking information from their sacred lands files and the names of Native American individuals and groups that would be appropriate to contact regarding this project. Letters were also sent to the local Native American groups (see Appendix A).

Archival Study Procedures

Archival research included examination of the library and project files at Tom Origer & Associates, and a review (NWIC File No. 15-0322) of the archaeological site base maps and records, survey reports, and other materials on file at the Northwest Information Center (NWIC), Sonoma State University, Rohnert Park. Sources of information included but were not limited to the current listings of properties on the National Register of Historic Places (National Register), California Historical Landmarks, California Register of Historical Resources (California Register), and California Points of Historical Interest, as listed in the Office of Historic Preservation's *Historic Property Directory* (OHP 2012).

In addition, ethnographic literature that describes appropriate Native American groups, county histories, and other primary and secondary sources were reviewed. Sources reviewed are listed in the "Materials Consulted" section of this report.

Historical maps were examined to gain insight into the nature and extent of historical development in the general vicinity, and especially within the study area. Maps reviewed ranged from hand-drawn maps of the 1800s (e.g., General Land Office, county maps and atlases) to topographic maps issued by the United States Geological Survey and the United States Army Corps of Engineers during the 20th century.

Archival Study Findings

Review of the NWIC base maps found that the study area had not been surveyed previously. Review found that three previous surveys are within a 1/2 mile of the study area; however, none of those found cultural resources are in settings similar to the study area (Beard and Quinn 2001; Origer 1994; Loyd 1993).

According to Barrett (1908:222), at least three villages were nearby; however, none are within two miles of the project area.

Cooper's sawmill was built in 1834 on Mark West Creek approximately 1/3 mile east of its confluence with the Russian River, and it washed away in a flood during the winter of 1840/41 (Department of Parks and Recreation 1976:77). The placement of the mill 1/3 mile upstream from the Mark West Creek/Russian River confluence is problematic. Old maps show the confluence being from 1/2 mile to 3/4 mile downstream of the current confluence location. Maps suggest that the Russian River course has changed during historic times to a more southerly position where it may have taken over the downstream portion of Mark West Creek. That being the case, Cooper's sawmill would have been situated approximately 1/2 mile downstream of the project site near Mirabel Park (see Department of Parks and Recreation 1976:77).

Review of historical maps found that there were no other known or suspected historical buildings or features in the study area (GLO 1864; Thompson 1877, USACE 1929; USGS 1942, 1954).

Field Survey Procedures

A field survey was completed by the authors on September 3, 2015. The entire study area was examined intensively by walking in transects less than 10 meters apart. Ground visibility was very good. One auger boring was made on each side of Mark West Creek to examine subsurface soils. Auger borings extended down to 120 centimeters.

Field Survey Findings

No cultural resources were found during the field survey.

RECOMMENDATIONS

No cultural resources were found during the survey. However, because there is a remote possibility that Cooper's Sawmill could once have stood on the banks of Mark West Creek near the current project area, we recommend that ground disturbing activities be carefully watched for evidence of the sawmill. Evidence could include buried beams, boards, and/or metal objects that may have been associated with the sawmill.

Accidental Discovery

There is the possibility that buried archaeological deposits could be present, and accidental discovery could occur. There is the slight possibility that buried archaeological materials could be found. If buried materials are encountered, all soil disturbing work should be halted at the location of any discovery until a qualified archaeologist completes a significance evaluation of the find(s) pursuant to Section 106 of the National Historic Preservation Act (36CFR60.4). Prehistoric archaeological site indicators expected within the general area include: chipped chert and obsidian tools and tool manufacture waste flakes; grinding and hammering implements that look like fist-size river tumbled stones; and for some rare sites, locally darkened soil that generally contains abundant archaeological specimens. Historic remains expected in the general area commonly include items of ceramic, glass, and metal. Features that might be present include structure remains (e.g., cabins or their foundations) and pits containing historic artifacts.

In keeping with the CEQA guidelines, if archaeological remains are uncovered (see above), work at the place of discovery should be halted immediately until a qualified archaeologist can evaluate the finds (§15064.5 [f]).

The following actions are promulgated in Public Resources Code 5097.98 and Health and Human Safety Code 7050.5, and pertain to the discovery of human remains. If human remains are encountered, excavation or disturbance of the location must be halted in the vicinity of the find, and the county coroner contacted. If the coroner determines the remains are Native American, the coroner will contact the Native American Heritage Commission. The Native American Heritage Commission will identify the person or persons believed to be most likely descended from the deceased Native

American. The most likely descendent makes recommendations regarding the treatment of the remains with appropriate dignity.

SUMMARY

Tom Origer & Associates conducted a cultural resources survey for the Mark West Creek Crossing Project near Forestville, Sonoma County, California. The survey was requested by Connie Barton of the Sonoma County Water Agency. The project is located approximately 2,300 feet east of the intersection of River Road and Mirabel Road.

No archaeological resources were found during the survey. We recommend that during earth-disturbing activities one pays close attention to possible features associated with Cooper's Sawmill.

MATERIALS CONSULTED

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1939 *Pomo Geography.* University of California Publications in American Archaeology and Ethnology, Vol. 36. Berkeley.

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Kuhn, S.
1979 *Archaeological Survey of the Batchelder Minor Subdivision (MS 7039), Sonoma County, California.* Document S-1846 on file at the Northwest Information Center, Sonoma State University, Rohnert Park.

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1993 *An Archaeological Survey for the River Road at Mirabel Road Signal Installation Project, Sonoma County, California.* Document 93-03 on file at Tom Origer and Associates, Santa Rosa, California.

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1994 *A Cultural Resources Survey for Kirkland Vineyard, Napa County, California.* Document 94-01 on file at Tom Origer & Associates, Santa Rosa, California.

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1922 Sebastopol, California 15' map. Geological Survey, Washington D.C.

United States Geological Survey
1915 Sebastopol, California 15’ map. Geological Survey, Washington D. C.

1942 Sebastopol, California 15’ map. Geological Survey, Washington D. C.

1954 Camp Meeker, California 7.5’ map. Geological Survey, Washington D. C.

APPENDIX A

Native American Contact

Native American Contact Efforts
for the Mark West Creek Crossing Project,
Forestville, Sonoma County, California

Organization	Letters	Results
Native American Heritage Commission	08/21/15	No comments have been received as of the date of this report.
Federated Indians of Graton Rancheria • Greg Sarris • Buffy McQuillen • Peter Nelson	08/21/15	No comments have been received as of the date of this report.
• Suki Waters	08/21/15	No comments have been received as of the date of this report.
Stewarts Point Rancheria • Reno Keoni Franklin • Lorin Smith	08/21/15	No comments have been received as of the date of this report.

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Mark West Creek Crossing
County: Sonoma County

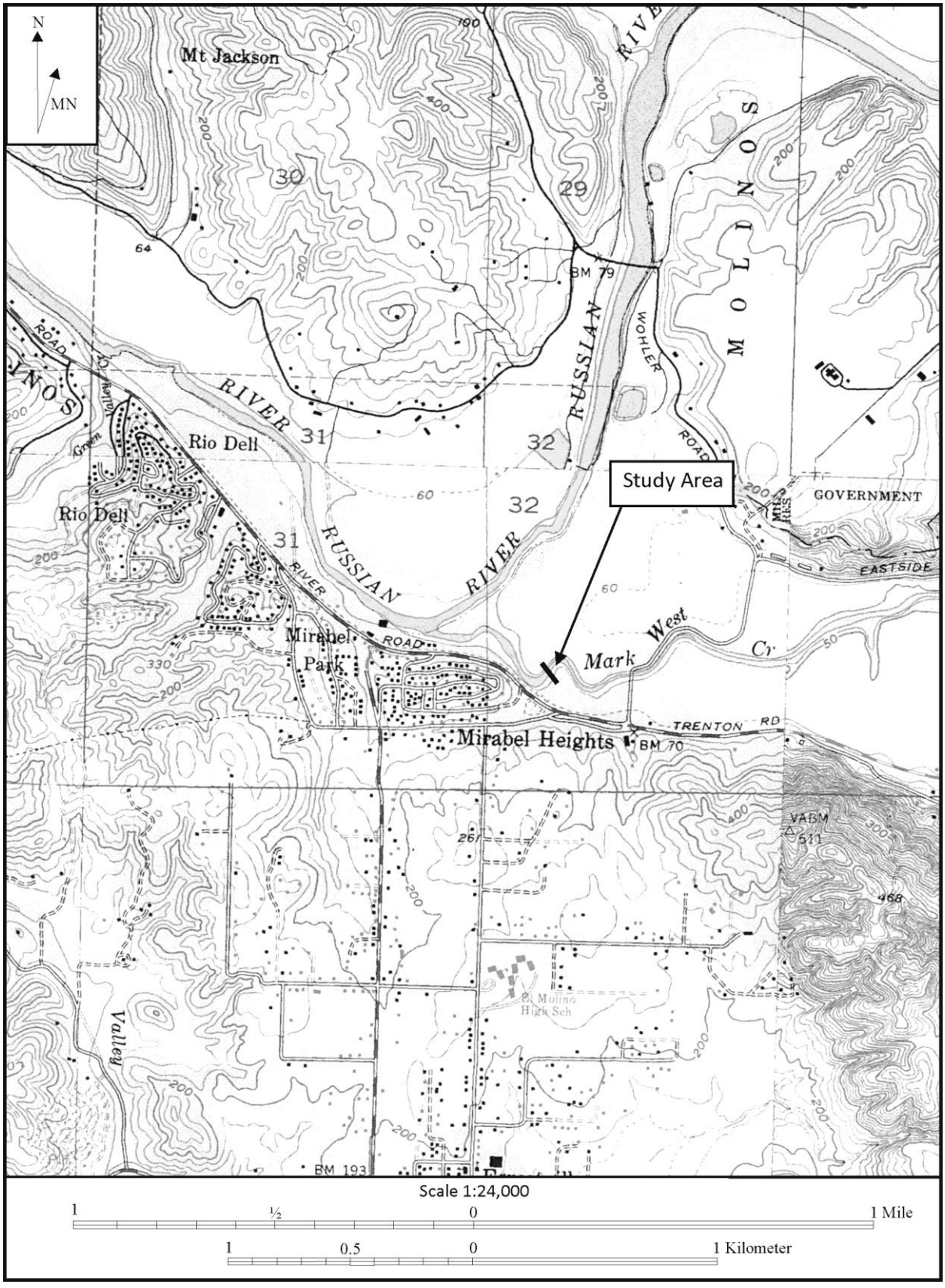
USGS Quadrangles

Name: Camp Meeker
Township T8N Range R9W Section(s) 32 MDBM

Date: August 21, 2015
Company/Firm/Agency: Tom Origer & Associates
Contact Person: Rachel Hennessy

Address: PO Box 1531
City: Rohnert Park Zip: 94927
Phone: (707) 584-8200 Fax: (707) 584-8300
Email: rachel@origer.com

Project Description:
The Mark West Creek Crossing Project is located 1,200 feet northeast of the intersection of River Road and Mirabel Avenue. The project consists of replacing underground pipe connections and installing supporting components on the north and south sides of the Russian River. This project is proposed by the Sonoma County Water Agency.


N
MN
Mt Jackson
Study Area
Rio Dell
Rio Dell
RIVER 31
RUSSIAN RIVER
RUSSIAN RIVER
Mirabel Park
Mirabel Heights
BM 70
BM 79
BM 193
WOHLER ROAD
TRENTON RD
EASTSIDE
GOVERNMENT
Mark West Cr
Valley
Scale 1:24,000
1 ½ 0 1 Mile
1 0.5 0 1 Kilometer

Tom Origer & Associates
Archaeology / Historical Research

August 21, 2015

Greg Sarris
Federated Indians of Graton Rancheria
6400 Redwood Drive, Suite 300
Rohnert Park, CA 94928

Re: Mark West Creek Crossing Project, Sonoma County, California

Dear Mr. Sarris:

I write to notify you of a proposed Sonoma County Water Agency Project, for which our firm is conducting a cultural resources study. The Mark West Creek Crossing Project is located 1,200 feet northeast of the intersection of River Road and Mirabel Avenue. The project consists of replacing underground pipe connections and installing supporting components on the north and south sides of the Russian River.

Enclosed is a portion of the Camp Meeker, California 7.5' USGS topographic quadrangle showing the project location.

Sincerely,

Rachel Hennessy
Associate

P.O. Box 1531, Rohnert Park, California 94927 ♦ www.origer.com Phone (707) 584-8200

Tom Origer & Associates
Archaeology / Historical Research

August 21, 2015

Buffy McQuillen
Federated Indians of Graton Rancheria
6400 Redwood Drive, Suite 300
Rohnert Park, CA 94928

Re: Mark West Creek Crossing Project, Sonoma County, California

Dear Buffy McQuillen:

I write to notify you of a proposed Sonoma County Water Agency Project, for which our firm is conducting a cultural resources study. The Mark West Creek Crossing Project is located 1,200 feet northeast of the intersection of River Road and Mirabel Avenue. The project consists of replacing underground pipe connections and installing supporting components on the north and south sides of the Russian River.

Enclosed is a portion of the Camp Meeker, California 7.5' USGS topographic quadrangle showing the project location.

Sincerely,

Rachel Hennessy
Associate

P.O. Box 1531, Rohnert Park, California 94927 ♦ www.origer.com Phone (707) 584-8200

Tom Origer & Associates
Archaeology / Historical Research

August 21, 2015

Peter Nelson
Federated Indians of Graton Rancheria
6400 Redwood Drive, Suite 300
Rohnert Park, CA 94928

Re: Mark West Creek Crossing Project, Sonoma County, California

Dear Mr. Nelson:

I write to notify you of a proposed Sonoma County Water Agency Project, for which our firm is conducting a cultural resources study. The Mark West Creek Crossing Project is located 1,200 feet northeast of the intersection of River Road and Mirabel Avenue. The project consists of replacing underground pipe connections and installing supporting components on the north and south sides of the Russian River.

Enclosed is a portion of the Camp Meeker, California 7.5' USGS topographic quadrangle showing the project location.

Sincerely,

Rachel Hennessy
Associate

P.O. Box 1531, Rohnert Park, California 94927 • www.origer.com Phone (707) 584-8000

Tom Origer & Associates
Archaeology / Historical Research

August 21, 2015

Suki Waters
P.O. Box 53
Jenner, California 95450

Re: Mark West Creek Crossing Project, Sonoma County, California

Dear Suki Waters:

I write to notify you of a proposed Sonoma County Water Agency Project, for which our firm is conducting a cultural resources study. The Mark West Creek Crossing Project is located 1,200 feet northeast of the intersection of River Road and Mirabel Avenue. The project consists of replacing underground pipe connections and installing supporting components on the north and south sides of the Russian River.

Enclosed is a portion of the Camp Meeker, California 7.5' USGS topographic quadrangle showing the project location.

Sincerely,

Rachel Hennessy
Associate

P.O. Box 1531, Rohnert Park, California 94927 ♦ www.origer.com Phone (707) 584-8200

Tom Origer & Associates
Archaeology / Historical Research

August 21, 2015

Reno Keoni Franklin
Tribal Chairman
Stewarts Point Rancheria
1420 Guerneville Road, Suite 1
Santa Rosa, Ca 95403

Re: Mark West Creek Crossing Project, Sonoma County, California

Dear Mr. Franklin:

I write to notify you of a proposed Sonoma County Water Agency Project, for which our firm is conducting a cultural resources study. The Mark West Creek Crossing Project is located 1,200 feet northeast of the intersection of River Road and Mirabel Avenue. The project consists of replacing underground pipe connections and installing supporting components on the north and south sides of the Russian River.

Enclosed is a portion of the Camp Meeker, California 7.5' USGS topographic quadrangle showing the project location.

Sincerely,

Rachel Hennessy
Associate

P.O. Box 1531, Rohnert Park, California 94927 ♦ www.origer.com Phone (707) 584-8200

Tom Origer & Associates
Archaeology / Historical Research

August 21, 2015

Lorin Smith
Tribal Historic Preservation Officer
Stewarts Point Rancheria
1420 Guerneville Road, Suite 1
Santa Rosa, Ca 95403

Re: Mark West Creek Crossing Project. Sonoma County, California

Dear Lorin Smith:

I write to notify you of a proposed Sonoma County Water Agency Project, for which our firm is conducting a cultural resources study. The Mark West Creek Crossing Project is located 1,200 feet northeast of the intersection of River Road and Mirabel Avenue. The project consists of replacing underground pipe connections and installing supporting components on the north and south sides of the Russian River.

Enclosed is a portion of the Camp Meeker, California 7.5' USGS topographic quadrangle showing the project location.

Sincerely,

Rachel Hennessy
Associate

P.O. Box 1531, Rohnert Park, California 94927 ♦ www.origer.com Phone (707) 584-8200

Appendix H

Notice of Preparation of Initial Study

Notice of Preparation
of
Initial Study

August 27, 2015

Russian River-Cotati Intertie Pipeline Seismic Hazard Mitigation at the Mark West Creek Crossing Project

TO:	State Clearinghouse Responsible and Trustee Agencies Interested Agencies and Parties	Lead Agency:	Sonoma County Water Agency 404 Aviation Blvd. Santa Rosa, CA 95403

The Sonoma County Water Agency (Water Agency) is preparing an Initial Study for the Mark West Creek Water Transmission Pipeline Seismic Hazard Mitigation Project (proposed project). An Initial Study is a preliminary analysis of a project's potential environmental impacts used to determine whether a Negative Declaration or an Environmental Impact Report will be prepared. It is a public document that analyzes the potential environmental effects related to construction, operation, and maintenance of a project and describes ways to reduce or avoid possible environmental impacts.

The Initial Study for the proposed project will be prepared in accordance with the provisions of the California Environmental Quality Act (CEQA), the State CEQA Guidelines, and the Water Agency's *Procedures for the Implementation of CEQA*. The Water Agency will be the Lead Agency pursuant to CEQA, and will consider all comments received in response to this Notice of Preparation (NOP), including comments from responsible and trustee agencies, property owners, and interested parties, regarding the scope and content of the information to be included in the Initial Study. This NOP describes the proposed project that will be analyzed in the Initial Study and identifies the issue areas that will be studied during the environmental review. Agencies and interested members of the public are invited to provide input on the scope of the environmental analysis to be evaluated.

SONOMA COUNTY WATER AGENCY

The Water Agency is a special district created by the California Legislature and operates under the direction of a Board of Directors, composed of the members of the Sonoma County Board of Supervisors. The Water Agency's powers and duties, as authorized by the California Legislature, include the production and supply of surface water and groundwater for beneficial uses, control of floodwaters, generation of electricity, providing of recreational facilities in connection with the Water Agency's facilities, and the treatment and disposal of wastewater.

PROJECT BACKGROUND

The Water Agency owns, operates, and maintains a 48-inch diameter steel water supply pipeline (referred to as the Russian River-Cotati Intertie) that crosses the southern and eastern aqueduct transmission lines and crosses the Russian River in Sonoma County. The Russian River-Cotati Intertie provides essential water service to 600,000 residents and

businesses within the Water Agency's service area in portions of Sonoma and Marin counties. The pipeline conveys water from collector wells near the Russian River to customers in the Water Agency's service area. Constructed in 1975 through open-cut trenching methods, the pipeline is buried at a relatively shallow depth (approximately 7 feet below ground surface) across the Mark West Creek channel and stream banks, and crosses seismically unstable terrain.

In 2002, the U.S. Geological Survey-led Working Group on California Earthquake Probabilities determined the probability of a major earthquake in the San Francisco Bay Area in the next 25 years is 62%, with a 27% chance that one will occur on the Rodger's Creek/Hayward Fault (USGS 2003). To identify and reduce potential adverse effects of an earthquake in their service area, the Water Agency prepared a Local Hazard Mitigation Plan (LHMP) (approved by the Federal Emergency Management Agency (FEMA) January 23, 2008). The LHMP identifies the Russian River-Cotati Intertie crossing of the Mark West Creek as vulnerable to potential ground deformation, liquefaction, and lateral spread resulting from strong ground shaking in the soil at or below the elevation of the pipeline. The LHMP states that pipeline failure from an earthquake would isolate the Mirabel collector wells from the Russian River-Cotati Intertie Pipeline. As a result, water supplies would be limited for residence(s) and businesses in the Water Agency's service area.

PROJECT NEED AND OBJECTIVES

The proposed project is needed to address seismic concerns related to reliable delivery of water to the Water Agency's service area and prevent the loss of an essential water service due to a moderate or severe earthquake along the Rodger's Creek/Hayward Fault.

Objectives of the proposed project are to:

- maintain safe and reliable water service to the entire population within Water Agency's service area (over 600,000 people and businesses);
- maintain support for firefighting capability; and
- avoid economic losses to local businesses as a result of pipeline rupture.

PROJECT LOCATION AND DESCRIPTION

The proposed project is located approximately 350 feet north of the intersection of River Road and Trenton Road near the community of Forestville in unincorporated Sonoma County (see Figure 1). The Project site encompasses the banks and upland areas on both sides of the Mark West Creek channel, approximately 0.2 mile downstream (west) from Wohler Road Bridge.

The proposed project would abandon and replace a section of the Russian River Cotati Intertie as it crosses through Mark West Creek, which is a tributary to the Russian River.

It is anticipated that the Russian River-Cotati Intertie would be temporarily out of service to connect the new pipeline. The Water Agency would provide advanced notification of water service interruptions (at least 24 hours) to affected water users in the service area. Service interruptions would not last more than 48 hours, and are not anticipated to occur more than two times throughout Project construction.

ISSUES TO BE ADDRESSED IN THE INITIAL STUDY

In accordance with CEQA, the Initial Study would address the potential environmental impacts, either individually or cumulatively, associated with the construction, operation, and maintenance of the proposed project. Specific areas of analysis may include: Aesthetics, Agricultural and Forest Resources, Air Quality, Biological Resources, Cultural Resources, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation and Traffic, and Public Utilities and Service Systems. Where feasible, mitigation measures will be proposed to avoid or reduce impacts. Other areas of analysis may be added based on input from the public and public agencies during the NOP review period. Decision-makers, responsible and trustee agencies under CEQA, and interested persons and parties will also have an opportunity to comment on the applicable CEQA document, as determined by the Initial Study (EIR or Negative Declaration) after it is published and circulated for public review.

PUBLIC COMMENT PERIOD FOR THIS NOTICE OF PREPARATION

The public comment period will close at 5:00 p.m. on Monday, September 28, 2015, which is 32 days after the date of publication. Please include a name, address, and telephone number of a contact person for all future correspondence on this subject. Please send comments to:

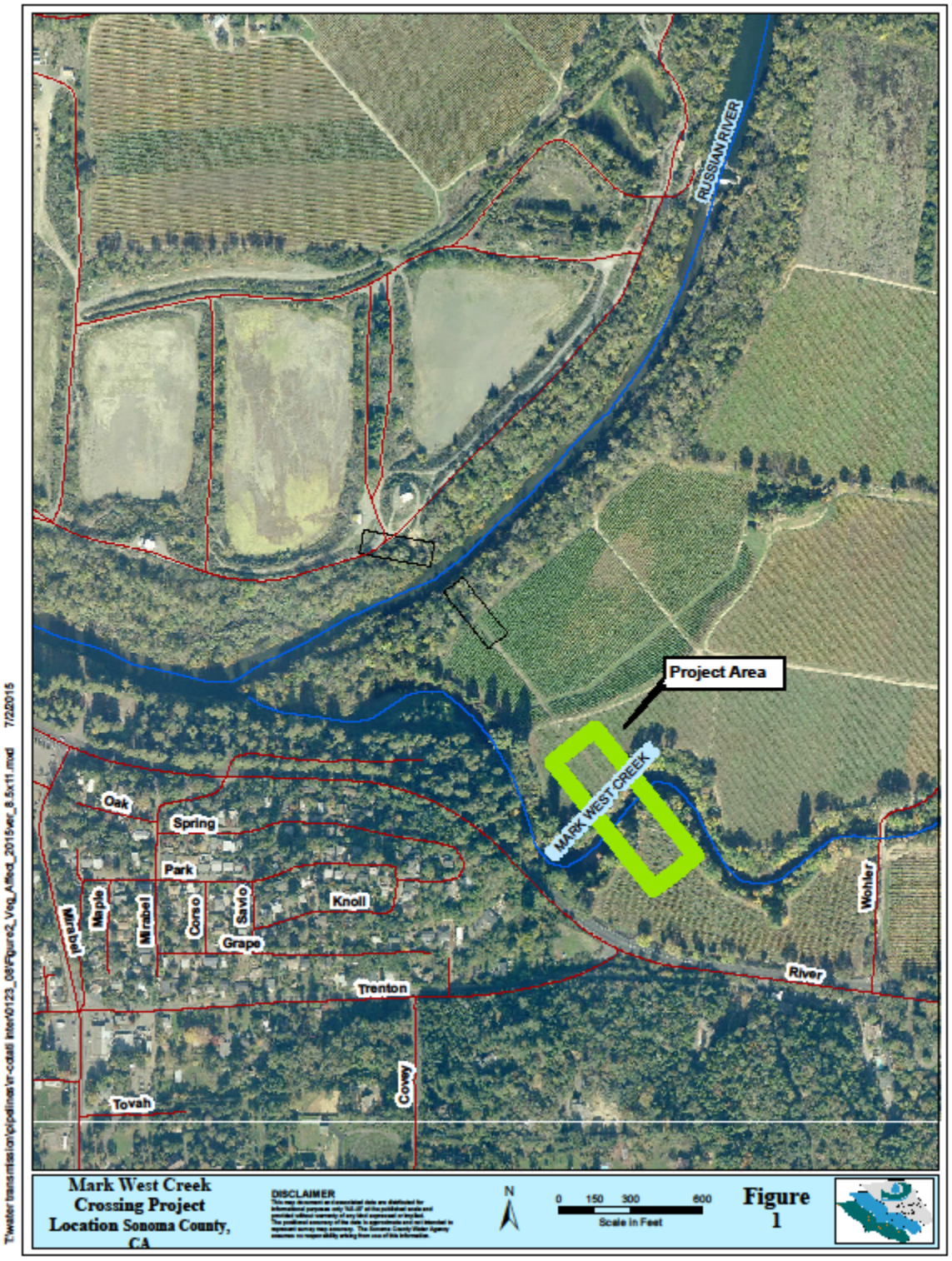
Sonoma County Water Agency
Attn: Connie Barton
404 Aviation Boulevard
Santa Rosa, CA 95403

Comments may also be submitted electronically to: connie.barton@scwa.ca.gov

Documents or files related to the proposed project are available for review online at www.sonomacountywater.org or at the Water Agency's administrative office located at 404 Aviation Boulevard, Santa Rosa, California, 95403. The NOP will also be available for review at the county library in Forestville.

If you have any questions regarding this Notice of Preparation, or if you wish to update information on our mailing list, please contact Connie Barton at 707-547-1905 or connie.barton@scwa.ca.gov.

Figure 1. Project Location and Vicinity



STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

Notice of Preparation

September 1, 2015

To: Reviewing Agencies

Re: Mark West Creek Crossing
SCH# 2015092001

Attached for your review and comment is the Notice of Preparation (NOP) for the Mark West Creek Crossing draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Connie Barton
Sonoma County Water Agency
404 Aviation Blvd.
Santa Rosa, CA 95403

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH#	2015092001
Project Title	Mark West Creek Crossing
Lead Agency	Sonoma County Water Agency

Type	NOP Notice of Preparation
Description	The proposed project would abandon and replace a section of the Russian River Cotati Intertie as it crosses through Mark West Creek, which is a tributary to the Russian River. It is anticipated that the Russian River-Cotati Intertie would be temporarily out of service to connect the new pipeline. The Water Agency would provide advanced notification of water service interruptions (at least 24 hours) to affected water uses in the service area. Service interruption would not last more than 48 hours, and are not anticipated to occur more than two times throughout Project construction.

Lead Agency Contact

Name	Connie Barton		
Agency	Sonoma County Water Agency		
Phone	707-547-1905	*Fax*	
email			
Address	404 Aviation Blvd.		
City	Santa Rosa	*State* CA	*Zip* 95403

Project Location

County	Sonoma			
City	Santa Rosa			
Region				
Cross Streets	River Road and Wohler Road			
Lat / Long	38° 29' 33" N / 122° 53' 13" W			
Parcel No.				
Township	*Range*	*Section*	*Base*	

Proximity to:

Highways	101
Airports	
Railways	
Waterways	Mark West Creek
Schools	
Land Use	

Project Issues	Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Geologic/Seismic; Noise; Public Services; Water Quality; Water Supply
Reviewing Agencies	Resources Agency; Department of Boating and Waterways; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Wildlife, Region 3; Native American Heritage Commission; California Highway Patrol; Caltrans, District 4; State Water Resources Control Board, Divison of Financial Assistance; State Water Resources Control Board, Division of Drinking Water; State Water Resources Control Board, Division of Water Rights; Department of Toxic Substances Control; Regional Water Quality Control Board, Region 1; Air Resources Board

Date Received 09/01/2015 *Start of Review* 09/01/2015 *End of Review* 09/30/2015

Note: Blanks in data fields result from insufficient information provided by lead agency.

Print Form

Appendix C

Notice of Completion & Environmental Document Transmittal

2015092001

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: Mark West Creek Crossing

Lead Agency: Sonoma County Water Agency — Contact Person: Connie Barton

Mailing Address: 404 Aviation Blvd. — Phone: 707-547-1905

City: Santa Rosa — Zip: 95403 — County: Sonoma

Project Location: County: Sonoma — City/Nearest Community: Forestville

Cross Streets: River Road and Wohler Road — Zip Code: 95436

Longitude/Latitude (degrees, minutes and seconds): 38 ° 29 ′ 33 ″ N / 122 ° 53 ′ 13 ″ W Total Acres: 1.30 Acres

Assessor's Parcel No.: — Section: — Twp.: — Range: — Base:

Within 2 Miles: State Hwy #: 101 — Waterways: Mark West Creek

Airports: — Railways: — Schools:

RECEIVED
SEP 01 2015
STATE CLEARINGHOUSE

Document Type:

CEQA: ☒ NOP ☐ Draft EIR — NEPA: ☐ NOI — Other: ☐ Joint Document
☐ Early Cons ☐ Supplement/Subsequent EIR ☐ EA ☐ Final Document
☐ Neg Dec (Prior SCH No.) ☐ Draft EIS ☐ Other:
☐ Mit Neg Dec Other: ☐ FONSI

Local Action Type:

☐ General Plan Update ☐ Specific Plan ☐ Rezone ☐ Annexation
☐ General Plan Amendment ☐ Master Plan ☐ Prezone ☐ Redevelopment
☐ General Plan Element ☐ Planned Unit Development ☐ Use Permit ☐ Coastal Permit
☐ Community Plan ☐ Site Plan ☐ Land Division (Subdivision, etc.) ☐ Other:

Development Type:

☐ Residential: Units ____ Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational:
☐ Recreational:
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type
☐ Mining: Mineral
☐ Power: Type ____ MW ____
☐ Waste Treatment: Type ____ MGD ____
☐ Hazardous Waste: Type
☒ Other: Hazard Mitigation Project

Project Issues Discussed in Document:

☐ Aesthetic/Visual ☐ Fiscal ☐ Recreation/Parks ☐ Vegetation
☒ Agricultural Land ☐ Flood Plain/Flooding ☐ Schools/Universities ☒ Water Quality
☒ Air Quality ☐ Forest Land/Fire Hazard ☐ Septic Systems ☒ Water Supply/Groundwater
☒ Archeological/Historical ☒ Geologic/Seismic ☐ Sewer Capacity ☐ Wetland/Riparian
☒ Biological Resources ☐ Minerals ☐ Soil Erosion/Compaction/Grading ☐ Growth Inducement
☐ Coastal Zone ☒ Noise ☐ Solid Waste ☐ Land Use
☐ Drainage/Absorption ☐ Population/Housing Balance ☐ Toxic/Hazardous ☐ Cumulative Effects
☐ Economic/Jobs ☒ Public Services/Facilities ☐ Traffic/Circulation ☐ Other:

Present Land Use/Zoning/General Plan Designation:

Project Description: *(please use a separate page if necessary)*

The proposed project would abandon and replace a section of the Russian River Cotati Intertie as it crosses through Mark West Creek, which is a tributary to the Russian River.

It is anticipated that the Russian River-Cotati Intertie would be temporarily out of service to connect the new pipeline. The Water Agency would provide advanced notification of water service interruptions (at least 24 hours) to affected water users in the service area. Service interruptions would not last more than 48 hours, and are not anticipated to occur more than two times throughout Project construction.

NOP Distribution List

County: SONAMA (CP) **SCH#** 2015092001

esources Agency

- ☐ **Resources Agency**
  Nadell Gayou
- ☒ **Dept. of Boating & Waterways**
  Denise Peterson
- ☐ **California Coastal Commission**
  Elizabeth A. Fuchs
- ☐ **Colorado River Board**
  Lisa Johansen
- ☐ **Dept. of Conservation**
  Elizabeth Carpenter
- ☐ **California Energy Commission**
  Eric Knight
- ☐ **Cal Fire**
  Dan Foster
- ☐ **Central Valley Flood Protection Board**
  James Herota
- ☐ **Office of Historic Preservation**
  Ron Parsons
- **Dept of Parks & Recreation**
  Environmental Stewardship Section
- ☐ **California Department of Resources, Recycling & Recovery**
  Sue O'Leary
- ☐ **S.F. Bay Conservation & Dev't. Comm.**
  Steve McAdam
- ☒ **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou

Fish and Game

- ☐ **Depart. of Fish & Wildlife**
  Scott Flint
  Environmental Services Division
- ☐ **Fish & Wildlife Region 1**
  Curt Babcock
- ☐ **Fish & Wildlife Region 1E**
  Laurie Harnsberger
- ☐ **Fish & Wildlife Region 2**
  Jeff Drongesen
- ☒ **Fish & Wildlife Region 3**
  Charles Armor
- ☐ **Fish & Wildlife Region 4**
  Julie Vance
- ☐ **Fish & Wildlife Region 5**
  Leslie Newton-Reed
  Habitat Conservation Program
- ☐ **Fish & Wildlife Region 6**
  Tiffany Ellis
  Habitat Conservation Program
- ☐ **Fish & Wildlife Region 6 I/M**
  Heidi Calvert
  Inyo/Mono, Habitat Conservation Program
- ☐ **Dept. of Fish & Wildlife M**
  George Isaac
  Marine Region

Other Departments

- ☐ **Food & Agriculture**
  Sandra Schubert
  Dept. of Food and Agriculture
- ☐ **Depart. of General Services**
  Public School Construction
- ☐ **Dept. of General Services**
  Anna Garbeff
  Environmental Services Section
- ☐ **Delta Stewardship Council**
  Kevan Samsam
- ☐ **Housing & Comm. Dev.**
  CEQA Coordinator
  Housing Policy Division

Independent Commissions,Boards

- ☐ **Delta Protection Commission**
  Michael Machado
- ☐ **OES (Office of Emergency Services)**
  Marcia Scully
- ☒ **Native American Heritage Comm.**
  Debbie Treadway
- ☐ **Public Utilities Commission**
  Supervisor
- ☐ **Santa Monica Bay Restoration**
  Guangyu Wang
- ☐ **State Lands Commission**
  Jennifer Deleong
- ☐ **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Cal State Transportation Agency CalSTA

- ☐ **Caltrans - Division of Aeronautics**
  Philip Crimmins
- ☐ **Caltrans – Planning HQ LD-IGR**
  Terri Pencovic
- ☒ **California Highway Patrol**
  Suzann Ikeuchi
  Office of Special Projects

Dept. of Transportation

- ☐ **Caltrans, District 1**
  Rex Jackman
- ☐ **Caltrans, District 2**
  Marcelino Gonzalez
- ☐ **Caltrans, District 3**
  Eric Federicks – South
  Susan Zanchi - North
- ☒ **Caltrans, District 4**
  Patricia Maurice
- ☐ **Caltrans, District 5**
  Larry Newland
- ☐ **Caltrans, District 6**
  Michael Navarro
- ☐ **Caltrans, District 7**
  Dianna Watson
- ☐ **Caltrans, District 8**
  Mark Roberts
- ☐ **Caltrans, District 9**
  Gayle Rosander
- ☐ **Caltrans, District 10**
  Tom Dumas
- ☐ **Caltrans, District 11**
  Jacob Armstrong
- ☐ **Caltrans, District 12**
  Maureen El Harake

Cal EPA

Air Resources Board

- ☒ All Other Projects
  Cathi Slaminski
  - ☐ Transportation Projects
    Nesamani Kalandiyur
  - ☐ Industrial/Energy Projects
    Mike Tollstrup
- ☒ **State Water Resources Control Board**
  Regional Programs Unit
  Division of Financial Assistance
- ☒ **State Water Resources Control Board**
  Karen Larsen
  Division of Drinking Water
- ☐ **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- ☒ **State Water Resouces Control Board**
  Phil Crader
  Division of Water Rights
- ☒ **Dept. of Toxic Substances Control**
  CEQA Tracking Center
- ☐ **Department of Pesticide Regulation**
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- ☒ **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- ☐ **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- ☐ **RWQCB 3**
  Central Coast Region (3)
- ☐ **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- ☐ **RWQCB 5S**
  Central Valley Region (5)
  - ☐ **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - ☐ **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- ☐ **RWQCB 6**
  Lahontan Region (6)
  - ☐ **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- ☐ **RWQCB 7**
  Colorado River Basin Region (7)
- ☐ **RWQCB 8**
  Santa Ana Region (8)
- ☐ **RWQCB 9**
  San Diego Region (9)

- ☐ **Other** _____
- ☐ _____
  Conservancy

Last Updated 6/23/2015